APPENDIX B

Sampling Protocol

California Environmental Protection Agency
AIR RESOURCES BOARD

Monitoring and Laboratory Division
Air Quality Surveillance Branch

Protocol for Ambient Air Monitoring for Methyl Bromide and 1,3-Dichloropropene In Ventura County During Summer, 2006

June 12, 2006

Prepared by:

Jack Romans
Air Pollution Specialist
Special Purpose Monitoring Section

Signatures:

Kenneth R. Stroud, Chief Date
Air Quality Surveillance Branch
Air Resources Board

Mike Poore, Chief Date
Northern Laboratory Branch
Air Resources Board

The following protocol has been reviewed and approved by staff of the Air Resources Board (ARB). Approval of this protocol does not necessarily reflect the views and policies of the ARB, nor does the mention of trade names or commercial products constitute endorsement or recommendation for use.

TABLE OF CONTENTS

Section

Figures

Appendix

In Ventura County During Summer, 2006

I.0 Introduction

At the request of the California Department of Pesticide Regulation (DPR) (December 28, 2005 Memorandum, Warnerdam to Witherspoon), the Air Resources Board (ARB) will conduct ambient air monitoring for the pesticides methyl bromide and Telone (cis-1,3-dichloropropene and trans-1,3-dichloropropene). Designed to coincide with the primary use of these fumigants prior to planting strawberries, monitoring will occur in Ventura County over an eight-week period planned for June 14, 2006 through August 6, 2006. This monitoring will be performed to fulfill the requirements of AB 1807/3219 (Food and Agricultural Code, Division 7, Chapter 3, Article 1.5) which requires the ARB, " to document the level of airborne emissions…of pesticides which may be determined to pose a present or potential hazard...", when requested by the DPR.

The ARB first performed monitoring in Ventura County for these pesticides from August 22, 2005 through September 30, 2005. The DPR requested that the ARB repeat this monitoring in 2006 because the latest 2004 pesticide-use data supplied by DPR indicates a shift from previous use data (Fall 2003) to an earlier growing season and numerous technical problems were encountered during analyses of samples collected in 2005. The 2006 sampling and analysis will follow the procedures outlined in this protocol.

The Special Analysis Section (SAS) of the Northern Laboratory Branch (NLB) will analyze collected samples using, "Standard Operating Procedures for the Sampling and Analysis of Bromomethane and Telone by GC/MS using a Varian Cryogenic Sampler and Silco™ Canisters". This analytical method is included as **Appendix I** (May 2001 Version) of this protocol and will be used as the analytical method for methyl bromide (bromomethane) and Telone.

Silco™, and its derivatives such as Silcosteel and SilcoCan, is a Trade Name given to a proprietary surface treatment applied to stainless-steel that is available from the canister and passive flow controller vendor, the Restek Corporation. This treatment purportedly provides a chemically inert and impermeable surface for enhanced sample stability and is the preferred method for collection and short-term storage of ambient Volatile Organic Compounds and pesticide samples.

2.0 Project Goal and Objectives

The goal of this monitoring project is to measure the concentrations of methyl bromide and Telone in the ambient air at various locations within Ventura County during a season of peak use in 2006.

To achieve the project goal, the following objectives should be met:

1. Identification of monitoring sites that mutually satisfies criteria for ambient air sampling and DPR's requirements.

2. Determination by DPR of season of peak use.

3. Appropriate application of sampling/monitoring equipment to determine ambient methyl bromide and Telone concentrations.

4. Application of relevant quality assurance/quality control practices to ensure the representativeness and integrity of field samples.

5. Adherence to established and approved field and laboratory practices, procedures and methods as well as provisions contained in this protocol.

6. At the conclusion of the project, the ARB will provide the DPR with a final report containing all relevant information, data and results gathered in the course of ARB's activities during the planning and execution of this project. As available, electronic versions of these documents, data and results will also be included.

3.0 Contacts

Mac McDougall, Manager *(project management)*
Special Purpose Monitoring Section
916-327-4720
emcdouga@arb.ca.gov

Jack Romans, Air Pollution Specialist *(project lead)*
Special Purpose Monitoring Section
Office 916-327-4716 Cell 916-952-9520
jromans@arb.ca.gov

Andy Cowell, Instrument Technician *(technical support)*
Special Purpose Monitoring Section
Office 916-445-1043 Cell 916-952-5447
acowell@arb.ca.gov

Russel Grace, Manager *(laboratory management)*
Special Analysis Laboratory Section
Office 445-9483
rgrace@arb.ca.gov

Karen Fletcher, Air Pollution Specialist *(laboratory analysis)*
Special Analysis Laboratory Section
Office 916-322-2430
kfletcher@arb.ca.gov

Mike Orbanosky, Air Pollution Specialist *(laboratory analysis)*
Special Analysis Laboratory Section
Office 916-322-2367
morbanos@arb.ca.gov

Randy Segawa, Senior Environmental Research Scientist *(DPR client)*
Department of Pesticide Regulation
324-4137
rsegawa@cdpr.ca.gov

4.0 Study Locations

Staff from the Special Purpose Monitoring Section (SPMS) selected six sampling sites in Ventura County for the 2005 monitoring study based upon historical use of Methyl Bromide

and Telone as indicated by the then most currently available (Fall 2003) DPR-supplied use-maps. These same sites will be used again for the 2006 monitoring study with the exception of the 2005 background site at Lincoln School. The latest (2004) use-maps indicated usage near the school and as a consequence DPR has requested a different background site. A new background site for 2006 has been identified by SPMS as the Ventura County APCD air monitoring site at Thousand Oaks High School in Thousand Oaks, Ventura County. During a visit to this site by SPMS staff, it was determined that the site is suitable and verbal approval for its use was obtained from Jim McElroy of VCAPCD.
The DPR subsequently approved of the new background site.

Site locations, as indicated on the map presented in **Figure 1**, were selected for their proximity to agricultural fields, the presence of residents or students, and with additional considerations for both accessibility and security of the sampling equipment. The ARB understands that the DPR staff will verify and quantify the usage of these fumigants during the study period when the information becomes available.

Six (6) locations in Ventura County will be used for the 2006 monitoring including the new background-designated site at Thousand Oaks High School.

Thousand Oaks High School, 2323 Moorpark Road, Thousand Oaks, CA, 91360 (805) 497-0167
GPS: Pending
Approval Contacts: James McElroy, Supervisor, Ventura County APCD (805) 662-6958

CA Dept. of Transportation (CALTRANS) Station, 4821 Adohr Lane, Camarillo, CA 93012
GPS: N 34º 12.407' W 119º 00.414'
Approval Contact: Mr. Vic Korzan, Manager, CA Dept. of Transportation, District 07 – West Region, 4821 Adohr Lane, Camarillo, CA, 93012, (805) 389-1106

Ventura County Fire Dept. Maintenance Facility, 2451 Latigo Road, Oxnard, CA 93030
GPS: N 34º 12.675' W 119º 08.595'
Approval Contacts: Chief Ralston, Ventura County Fire Dept., 165 Durley Avenue, Camarillo, CA, 93010; Mr. Brett Wreesman, Senior Fire Mechanic, Support Division, 2451 Latigo Ave., Oxnard, CA, 93030, 805.278-5200

United Water Conservation District, 3561 Rose Avenue, Oxnard, CA 93030
GPS: N 34º 15.160' W 119º 08.193'
Approval Contact: Mr. Tony Blankenship, Operations Superintendent, United Water Conservation District, 106 N. 8th Street, Santa Paula, CA, 93060, 805.485-5114 ext. 11

4.0 <u>Study Locations</u> (continued)

Laguna Vista Elementary School, 5084 Etting Road, Oxnard, CA 93033
GPS: N 34º 09.695' W 119º 05.645'

Approval Contacts: Ms. Nancy J. Carroll, Ph.D., Superintendent, Ocean View School District, 2382 Etting Road, Oxnard, CA 93033; Ms. Suzanne S. Lange, Principal, Laguna Vista Elementary School, 5084 Etting Road, Oxnard, CA, 93033, 805.488-3638

CA Dept. of Forestry / CA Youth Authority, 2800 Wright Road, Camarillo, CA 93010
GPS: N 34º 14.702' W 119º 06.457'
Approval Contacts: Chief Parker, CA Dept. of Forestry, 2800 Wright Road, Camarillo, CA, 93010, (805) 983-3960; Mr. Ruben Nunez, Superintendent, CA Dept. of Corrections, 3100 Wright Road, Camarillo, CA, 93010, (805) 485-7951 ext. 3700

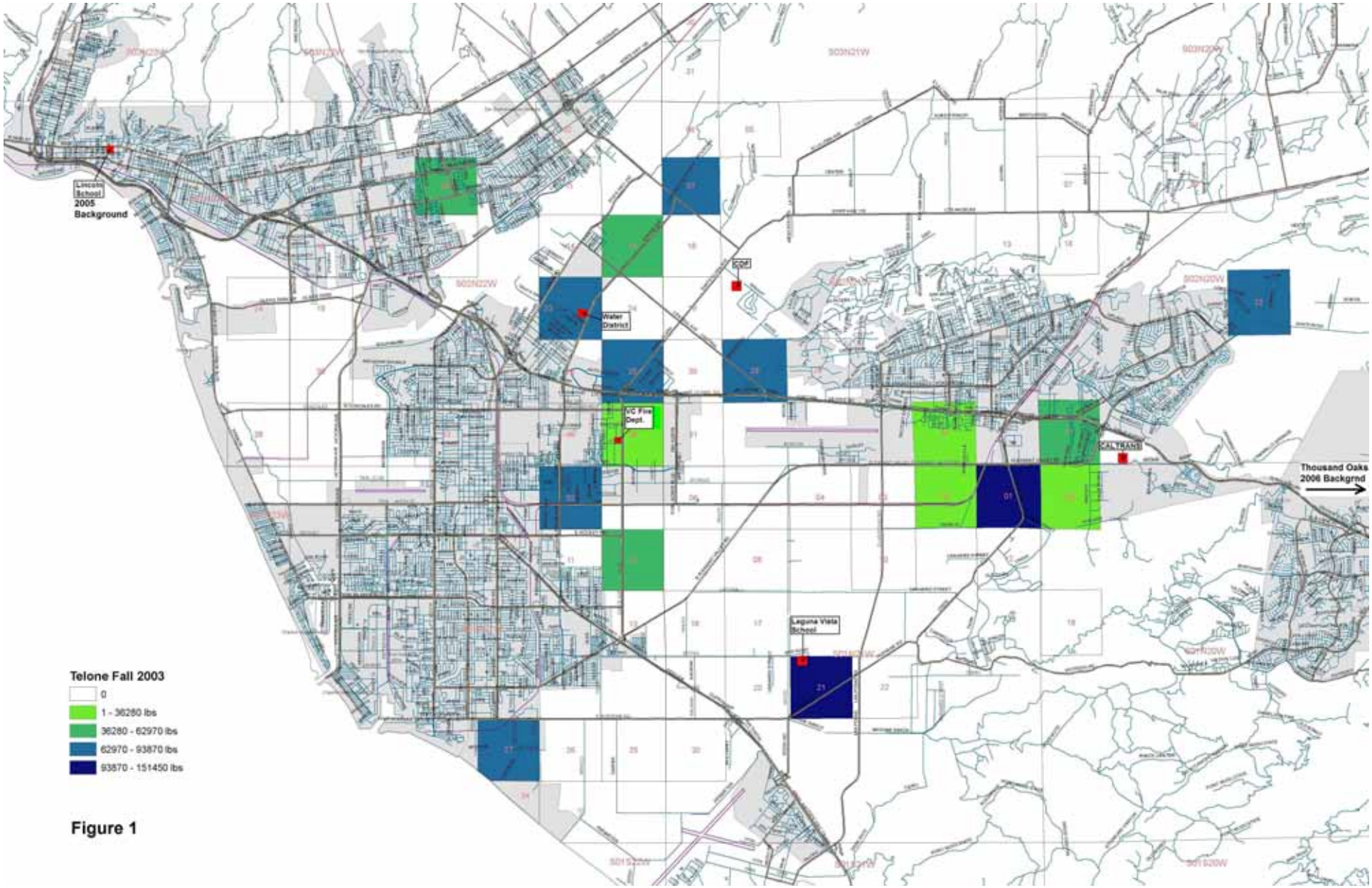

Lincoln School
2005 Background
Golf
Water District
VC Fire Dept.
CALTRANS
Thousand Oaks 2006 Backgrnd
Laguna Vista School
Telone Fall 2003
0
1 - 36280 lbs
36280 - 62970 lbs
62970 - 93870 lbs
93870 - 151450 lbs

Figure 1

5.0 Study Design

The collection media used for sampling of methyl bromide and Telone will be Silcosteel® treated canisters sampled through Restec passive flow controllers. An image of these samplers deployed during the 2005 Ventura Study is presented in **Figure 2.** Individual air samples will consist of 24-hour sample collection periods (typically 7 A.M. to 7 A.M. the following day), four days per week, Monday through Friday, for the duration of the eight-week study.

Note: In addition to sampling Monday through Friday, weekend sampling consisting of collecting Saturday and Sunday samples has been requested by DPR. This weekend sampling has been scheduled to occur at the ends of Weeks l, 4, and 8, at those sites where weekend access is permitted. Tentative approval for weekend access has been obtained for the Thousand Oaks background site, the Department of Forestry site, and the Water District site. Requests and approvals for the remaining sites are ongoing.

Twenty-four hour (24-hour) time-Integrated ambient air samples will be collected using evacuated, six-liter Silcosteel® canisters (Restec Corporation). The target sample flow rate of 3 standard cubic centimeters per minute (scc/m) will be set and regulated using a passive flow controller and verified by a certified battery-operated mass flow meter (0-10 scc/m Aalborg). The sampling system will be operated continuously for 24 hours with the exact operating interval recorded on both the Restek SilcoCan Pesticide Data/Sample Tracking Sheet presented in **Figure 3** and the Canister Field Log Sheet presented in **Figure 4**. The canister vacuum reading will be recorded at the start and end of each sampling period using the –30 to 0 inches of Mercury (in Hg) passive flow controller (sampler) gauge. The start and end canister vacuum readings will be approximately -30 in Hg and -5 to -8 in Hg respectively as indicated by the sampler gauge. The canister vacuum reading will also be measured using a more accurate gauge in the lab before and after transport to/from the field (the sampler's pressure/vacuum gauge is not calibrated for accuracy). The laboratory gauge readings will be used to calculate the sample volume collected. The 3 scc/m sampling rate will yield a sample volume of 4.3 liters over the 24-hour sampling period. The estimated quantitation limit (EQL) for MeBr is 0.036 ug/m^3 (target EQL was 0.4 ug/m^3) and the EQLs for cis and trans 1,3-dichloropropene are 0.015 and 0.03 ug/m^3 respectively (target EQL for Telone was 0.01 ug/m^3).

The passive flow controllers (Silcosteel-treated Veriflo SC423XL), equipped with new frits, will be attached to the valve fitting on the canister using a Silcosteel treated swagelock connector. A six foot section of new or adequately cleaned 1/8 inch O.D, Silcosteel tubing will be attached to the inlet end of the flow controller. The inlet end of the tubing will be bent into a U shape (to prevent rain from entering) and supported about six feet above the building rooftops for the ambient monitoring (See image in **Figure 2**).

5.0 **Study Design** (continued)

At the end of each sampling period, the canisters will be placed in shipping containers with their assigned and attached Restek SilcoCan Pesticide Data/Sample Tracking Sheet (**Figure 3**). The canisters are to be transported as soon as practical to the ARB laboratory in Sacramento (typically, at the end of each sampling week). The fresh canisters will be picked-up from the lab on Friday (or the following Monday if weekend sampling week), stored in the transport vehicle and transported to Ventura the following Sunday (or Tuesday if weekend sampling week). After sampling, the canisters will be returned to the Sacramento laboratory the following Friday (or Sunday if weekend sampling week). The canisters will be transported and stored at ambient temperatures while in the field and at ambient laboratory temperature prior to analysis. These foregoing tasks will be performed by assigned SPMS staff according to the staff rotation schedule presented in **Section 10.0** of this protocol.

To ensure a steady sample flow rate and subsequent collection of a representative sample, a passive flow controller, Veriflo SC423XL, from Restek is used. This controller uses a metal diaphragm downstream of the critical orifice to regulate the flow rate as the vacuum in the canister changes. It is capable of maintaining a constant flow rate with the vacuum ranging from -30.0 in Hg to approximately -5 in Hg. An in-line filter (referred to as a “frit” by Restek), having a 2-micron pore size, prevents particles from entering and clogging the critical orifice of the flow controller. These passive flow controllers utilize volumetric principles (pressure differential) and as such are affected by ambient conditions. The manufacturer’s specifications state that there is an approximately six percent reduction in flow rate when the temperature changes from 80 °F to 125 °F. To minimize temperature changes due to solar radiation, a 6-10 inch diameter sun-shade (pie-plate) is installed immediately above the flow controller.

The canister field/lab data sheet and canister field log sheet presented in **Figures 3 and 4** respectively will be used to record start and stop times, start and stop vacuum readings, sample identifications, weather conditions, operator’s initials and other significant observations.

For each site, a target number of 40, 24-hour canister samples will be taken during the eight-week sampling period (4 samples per week per site x 8 weeks = 32 regular + 1 collocated per site x 8 weeks) not including QC samples. Collocated (duplicate) samples will be collected from each site once per week for a total collection of 8 collocated pairs per sampling location. Three (3) weekend (Friday AM to Sunday AM) collection days are also planned for Weeks 1, 4 and 8, as requested by DPR.

6.0 Laboratory Analysis

The laboratory method, "Standard Operating Procedures for the Sampling and Analysis of Bromomethane and Telone by GC/MS using a Varian Cryogenic Sampler and Silco™ Canisters," is included as **Appendix I** (May 2001 Draft Version). This method will be used as the primary analysis method for methyl bromide (bromomethane) and 1,3-dichloropropene. The procedures are based on EPA Method TO-15 which includes cryogenic pre-concentration and GC/MS analysis. The canisters arrive from the field at sub-ambient pressure and are pressurized (diluted) in the laboratory before analysis.

6.1 Sampling and Analysis Procedures

The following canister validation and analytical quality control criteria should be followed during pesticide analysis.

1. **Sample Hold Time**: The laboratory will develop sample hold time criteria and provide analytical results. Sample hold time criteria will include the same time duration beginning with sample collection through to the completion of laboratory analysis for all samples.

2. **Duplicate Analysis**: Laboratory to establish relative percent difference (RPD) criteria for duplicate analysis. Lab to provide duplicate analytical results and RPD.

3. **Method Detection Limit (MDL)**: MDL sample analytical results less than the MDL shall be reported as a less than numerical value. This less than numerical value shall incorporate any dilutions/concentrations.

4. **Estimate Quality Limit (EQL)**: EQL convention shall be eliminated. In the past, measurements falling between MDL and five times the MDL (EQL) were reported as "detect". All values at or above the MDL shall be reported as a numeric value.

5. **Analytical Linear Range**: Any analytical result greater than 20% of the highest calibration standard shall be diluted within the linear range.

Figure 2: Passive Flow Control Canister Sampler (2005 Ventura deployment)

[Place data sheet inside plastic pouch]

CALIFORNIA AIR RESOURCES BOARD
Restek SilcoCan Pesticide Data/Sample Tracking Sheet

Pesticides
Veriflo
Controller

Project Name: _____

Site/Sample Name: _____

Lab I.D.: | Operator & Agency: _____

	Date	Time (PST)	CANISTER Vacuum ("Hg) LAB	CANISTER Vacuum ("Hg) FIELD	LABORAT Pressure or	SAMPLER MFC Reading		SAMPLER Vacuum	
Set-Up									
Start									
Stop					LAB**				

Type of Sample: [ ] Regular [ ] Collocated [ ] Spike [ ] Blank [ ] Other

Field Log Number: _____ Canister ID Number: _____ Sampler ID Number: _____

Observed Unusual Sampling Condition: [ ] Wind-Blown Sand/Dust [ ] Rain [ ] Farming Nearby [ ] Construction Nearby [ ] Fire Nearby [ ] Other _____

[ ] INVALID SAMPLE INFORMATION

Reason for Sample Invalidation

[ ] Vacuum lower than -10"Hg
[ ] Vacuum higher than -5"Hg
[ ] Sampling period out of range (<___ or >___ hours)
[ ] Other reasons: _____
[ ] Sampling equipment inoperative

Field Comments: _____

Sample Tracking

Action	Transfer Method (Check one) Carrier	Transfer Method (Check one) Person	Name & Initials	Date/Time
Released by Lab				
Received by Field				
Released by Field				
Received by Lab				

===FOR LABORATORY USE ONLY====

Lab Comments: _____

** = Calibrated Guage Pressure or Vacuum

04/20/06

Figure 3: Restek SilcoCan Pesticide Data/Sample Tracking Sheet

Figure 4: Canister Field Log Sheet

7.0 List of Field Equipment

(13 = 12 + 1 spare): passive flow controllers each equipped with 24-hour orifice.

(12): sampling trains; 2-meter length sample probe/canister pier blocks assemblies.

(2 = 1 + 1 spare): Aalborg 0-10 ccm/m battery-powered mass flow meter (certified).

(1): Minimum 10 feet tall ladder (carried in vehicle)

(1): Minimum 6 feet tall ladder (stored at Laguna Vista rooftop)

(1): Set of tie-down straps for securing samplers at Caltrans site

(1): Field Binder containing Canister Sample Log Sheets and Protocol

(1): Laptop PC with Excel spreadsheet of Canister Sample Log Sheets

(1): Digital Camera and Global Positioning Sensor (GPS) for first week only

(1): Access keys to Thousand Oaks site

(1): Tool Bag or box containing common hand tools including 3 mm Allen wrench.

(1): Cell Phone and ARB Phone List

(6): Spare flow controller frits

(6): Approval Request Letters (signed) for sampling site landowners.

7.1 Field / Lab Canister Handling Procedures

- The SAS laboratory indicated that 33 canisters (full week allotment) will be ready for field deployment on Monday June 12th.
- Thirty-three (33) canisters (cans) will be deployed each week.
- 6 sites x 4 days + 6 collocated + 1 field spike + 1 trip spike + 1 trip blank
- Cans ready for deployment will be located in the lab's north/south hallway.
- Cans returning from the field (Friday, or Sunday if weekend sampling week) should be placed in the lab's north/south hallway upon return to Sacramento.
- Lab building security access code is the same as 13th & T Streets.
- Copies of Canister Field Log Sheets (**Figure 4**) should be made for the lab and SPMS. The originals remain in the field binder.

8.0 Quality Control

Quality Control for the 2006 ambient monitoring study in Ventura will include the following provisions:

A planned total of 264 canisters are expected to go into the field over the eight-week monitoring study period. It is therefore essential that each sample be identified and distinguished by assignment of unique tags. These tags will consist of a sequential Field Log Number and a Sample Identification Name assigned by SPMS staff to canisters at the time canisters are prepared for sampling. These tags will be contemporaneously recorded onto both the Restek SilcoCan Pesticide Data/Sample Tracking Sheet and the Canister Field Log sheet (**Figures 3 and 4**). Toward the end of each sampling day, this information will also be entered into an Excel spreadsheet of the Canister Field Log Sheet. Should any discrepancies be found in the field data, corrections should be made at this time.

The Field Log Number will start with #1 and progress sequentially as the study period progresses. Once a log number has been assigned to a canister sample, that number should not be used again even if the sample didn't run or is determined to be invalid.

The unique Sample Identification Name assigned to each sample canister should follow the pattern in the following example: **1-TO-C-9999**

Where: "**1**" is the number of the daily sample batch. All samples collected on the same day, including QC samples, should have the same number. Next day's samples will start with "2", etc.

"**TO**" is the site identifier abbreviation. The following abbreviations will be used:

TO – Thousand Oaks High School
CT – Caltrans Station
VC – Ventura County Fire Dept. Maintenance Facility
UD – United Water Conservation District
CF – CA Dept. of Forestry / CA Youth Authority Facility
LV – Laguna Vista Elementary School

"**C**" is the identifier for a collocated sample. Other identifiers to be similarly used include **FS** for **F**ield **S**pike, **TS** for **T**rip **S**pike and **TB** for **T**rip **B**lank.

9999 – Permanent canister number assigned by lab

8.0 **<u>Quality Control</u>** (continued)

1) **Field Spikes**: For 2006, field spikes will be prepared by the laboratory by injecting canisters with two different concentration levels, 10 ug/m3 and 50 ug/m3 of methyl bromide, cis-1,3-dichloropropene, and trans-1,3-dichloropropene. The only spike concentration used in 2005 was10 ug/m3.

A minimum of 8 field spike samples will be collected during the eight-week study. Every week the lab will supply one field spike canister, alternating between the low and high concentrations. The field spike sample is obtained by sampling ambient air at the urban background monitoring site for a 24-hour period and collocated with collection of a background sample at the same environmental and experimental conditions.

Field Spikes will be identified and distinguished from other samples by including the initials "FS" to the Sample Identification Name as recorded on both the Restek SilcoCan Pesticide Data/Sample Tracking Sheet (**Figure 3**) and Canister Field Log Sheet (**Figure 4**). Example: 1-TO-**FS**-9999.

2) **Trip Spikes**: A minimum of 8 trip spikes will be prepared by the laboratory at the same levels (high and low) as the field spikes. A trip spike will be transported and analyzed along with each field spike. Trip spikes are treated the same as field spikes with the exception that they are not installed onto a sampler.

Trip Spikes will be identified and distinguished from other samples by including the initials "TS" to the Sample Identification Name as recorded on both the Restek SilcoCan Pesticide Data/Sample Tracking Sheet and Canister Field Log Sheet. Example: 1-TO-**TS**-9999.

3) **Lab Spikes**: A minimum of 8 lab spikes will be prepared by the laboratory at the same levels (high and low) as the field and trip spikes. A lab spike will be analyzed along with each of the field and trip spike pairs. The lab spike canisters remain in the custody of the laboratory.

8.0 Quality Control (continued)

4) **Trip Blanks**: A minimum of 8 trip blanks will be prepared by the laboratory. The Trip Blank canister accompanies that week's sample canisters from the lab to the field and return but is not installed onto a sampler. One trip blank will be generated for each week of sampling.

Trip Blanks will be identified and distinguished from other samples by including the initials "TB" to the Sample Identification Name as recorded on both the Restek SilcoCan Pesticide Data/Sample Tracking Sheet and Canister Field Log Sheet. Example: 1-TO-**TB**-9999.

5) **Collocated:** Collocated samples will be collected at each sampling site for eight dates during the eight-week monitoring period. Typically, collocated samples are collected at least once per week from each of the sampling sites, all on the same day. This latter procedure requires that two samplers be deployed at each site, which is typically the case unless there is a shortage of samplers. In which case, a sampler may be moved or rotated from site to site to obtain collocation collection even if not on the same day as other sites.

Collocated samples will be identified and distinguished from other samples by including the initial "C" to the Sample Identification Name as recorded on both the Restek SilcoCan Pesticide Data/Sample Tracking Sheet and Canister Field Log Sheet. Example: 1-TO-**C**-9999.

Note: All canisters that go into the field, including all QC canisters, will have unique sequential log numbers and sample names assigned to them by field staff that will be recorded onto field logs and canister data sheets.

6) **Sample Duration:** The sample collection period is 24 +/- 0.5 hours and the preferred sample start time for the first visited site is 7 A.M. PDT +/- 1 hour.

7) **Flow Checks:** The sample collection period starts when the canister Valve is manually opened and ends when the valve is closed. After opening and before closing the valve, a (NIST)-certified mass flow meter is connected to the sample intake opening of the sample probe. The indicated sample flow rate is recorded, or in the case of the start of the collection period, changed if necessary by adjusting the passive flow controller then recorded.

8.0 Quality Control (continued)

For the 24-hour time-integrated sampling to be performed during this study, the sample flow rate should read (as indicated by the attached mass flow meter) a corrected 3.0 standard cubic centimeters per minute (sccm) +/- 0.3 sccm. This nominal flow rate has been determined to provide the necessary volume of sample to result in a final canister vacuum of between -6 and -8 inches of mercury ("Hg) as indicated by the passive flow controller vacuum gage. If the end vacuum gauge reading is less than -6" Hg, the flow controller's ability to maintain a uniform sample flow rate may have been affected, usually indicated by end flow rate measurement outside of allowable limits. If the end vacuum reading is more than -10" Hg, the collected sample volume is less than what could have been collected.

Due to factors such as ambient conditions and accuracy of sampler gauge, the start and stop flow rate measurements, and start and stop sampler vacuum gage readings, **should not** solely be used as sample validation criteria but rather a field indication as to whether a 24-hour integrated sample is being collected and that the sample volume (as indicated by the sampler gauge) correlates with flow rate measurements.

If a canister prepared for sampling indicates a sampler vacuum gage reading of 0 to 25" Hg, that canister should not be used for sampling. If a canister indicates a sampler gage reading of 25 to 29" Hg, that canister should be set aside and not used for sampling unless a spare canister is unavailable, in which case it can be used.

If measured flow rates and/or final canister vacuums don't fall within the above guidelines, perform the following tasks in the order presented:

1) Endeavor to keep sampling duration as close as possible to 24-hours.

2) Assure that beginning and ending flow rates are 3.0 +/- 0.3 sccm. If not, adjust the passive flow controller's flow control valve.

3) If a minimum sample flow of 3.0 sccm cannot be obtained and/or end can vacuums are higher than -10", replace the flow controller's frit (in-line filter).

4) If replacing the frit does not solve problem, replace the entire passive flow controller.

5) If measured sample flow rates are within guidelines but ending vacuums are less than -5", a leak may have occurred. Collect another sample as scheduled and if this happens again to a similar degree, replace the passive flow controller.

9.0 Deliverables

9.1 Deliverables from Air Quality Surveillance Branch (AQSB)

Within 60 days from receipt of the final laboratory results report from the Northern Laboratory Branch (NLB), AQSB will provide (for comment) a comprehensive draft monitoring report in both hardcopy and electronic formats to the Department of Pesticide Regulation. This draft report will contain or cover the following topics:

1) Sampling Protocol
2) Personnel Contact List
3) Site Maps
4) Site Photographs
5) Site Descriptions and Measurements (site, sampler, GPS coordinates, inlet height, distance to roads, site-specific comments)
6) Sample Summary Table
7) Canister Field Log Sheets
8) Laboratory Analysis Results Report including concentration calculations in electronic (preferred) format
9) Transfer Standards' Certification Reports
10) Section or provision listing or reporting all deviations from this protocol and/or established procedures.
11) Compact Disk containing electronic file of draft monitoring report

In addition, the Special Purpose Monitoring Section (SPMS) may prepare a project binder containing the above information. This binder will remain with SPM though available for viewing and review as requested.

9.2 Deliverables from Northern Laboratory Branch (NLB)

Within 60 days from last date of analysis, the NLB will provide (for comment) the AQSB with a draft analysis results report in electronic format. This draft report will contain or cover the following topics:

1) Table(s) of sample data to include:

- Sample identification (name)
- Date sample received from field
- Date sample analyzed
- Pre-dilution canister pressure
- Post-dilution canister pressure
- Dilution ratio
- Post-analysis canister pressure
- Analytical results
- Adjusted or resultant Level of Detection (LOD) when applicable

2) All equations or algorithms used in calculating analytical results.

3) Table of duplicate analytical results including calculated relative percent difference (RPD).

4) Table of collocated results including calculated RPD.

5) Table of analytical results from all field, trip, and laboratory spikes including calculated percent recoveries.

6) Table of analytical results from all trip blanks.

7) Table of analytical results from all laboratory blanks, standards, and control checks performed including dates performed and relative percent recoveries if applicable.

8) Copy or location of analytical method or Standard Operating Procedures (SOP) used for analyses.

9) Section or provision listing or reporting any and all deviations from analytical SOP and this protocol.

10.0 Staff Rotation Schedule

SPMS STAFF ROTATION SCHEDULE FOR THE
2006 VENTURA AMBIENT PESTICIDE STUDY

Dated: June 8, 2006

These Special Purpose Monitoring Section (SPMS) staff rotation schedules for the 2006 Ventura County ambient pesticide study are based upon a Primary June 14 through August 6 study period. If a delay in starting date should occur, the Alternate target study period is the following week, June 21 through Aug 13. The two schedules that follow are for these Primary and Alternate study periods:

Note: Monday though Friday sample collection periods require travel on Sundays and Fridays. Wednesday through Sunday sample collection periods (weekend sampling) require travel on Tuesdays and Sundays. This weekend schedule requires an enroute transfer of Field Log Sheet binder, field PC, MFM's, etc. on a Sunday between the person coming from and the person going to Ventura.

*Wednesday thru Sunday (weekend) sampling scheduled for Weeks 1, 4 and 8.

/ Setup and teardown days require 2 persons that day only.

Italicized name in table denotes a partial week assignment.

Note: Day / Dates in table refer to sample collection periods, not travel dates.

Primary: June 14 – August 6				**Alternate:** June 21 – August 13		
Wee	**Day / Dates**	**Staff**		**Wee**	**Dates**	**Staff**
1*	Wed 6/14–Su 6/18	Andy **/** *Jack*		1*	Wed 6/21 – Su 6/25	*Andy* **/** Jack
2	Mo 6/19 – Fr 6/23	Jack		2	Mo 6/26 – Fr 6/30	Jack
3	Mo 6/26 – Fr 6/30	Jack		3	Mo 7/3 – Fr 7/7	Andy
4*	Wed 7/5 – Su 7/9	Aston		4*	Wed 7/12 – Su 7/16	Aston
5	Mo 7/10 – Fr 7/14	Andy		5	Mo 7/17 – Fr 7/21	Rider
6	Mo 7/17 – Fr 7/21	Rider		6	Mo 7/24 – Fr 7/28	Aston
7	Sun 7/24–Fr 7/28	Aston		7	Mo 7/30 – Fr 8/4	Andy
8*	Wed 8/2 – Sun 8/6	Andy **/** *Jack*		8*	Wed 8/9 – Su 8/13	*Andy* / Jack

- Thousand Oaks will be first visited sampling site.
- Thousand Oaks sampling will start at 7 A.M. PDT +/- 1 hour.

Appendix I

Draft

Standard Operating Procedure for the Sampling and Analysis of Bromomethane, and Telone by GC/MS using a Varian Cryogenic Sampler and Silco™ 6 liter Canisters

California Environmental Protection Agency

Air Resources Board

Special Analysis Section
Northern Laboratory Branch
Monitoring and Laboratory Division

Draft

Standard Operating Procedure for the Sampling and Analysis of Bromomethane, and Telone by GC/MS using a Varian Cryogenic Sampler and Silco™ 6 liter Canisters

version
May, 2001

Approved by:

1. SCOPE

This method is for the sampling and analysis of bromomethane (Methyl Bromide) and telone (cis-1,3-dichloropropene and trans-1,3-dichloropropene) in ambient air using 6 liter Silco™ canisters for sample collection. Collected samples are analyzed by gas chromatography/mass spectrometry using a Varian Stand Alone cryogenic sampler.

2. SUMMARY OF METHOD

Ambient air is collected into evacuated 6-liter Silco™ canisters. Field sampling uses a sub-atmospheric pressure collection mode. Sample canisters are pressurized in the laboratory to facilitate laboratory sampling. Samples are analyzed by Gas Chromatography / Mass Spectrometry (GC/MS) using a cryogenic concentrator to prepare the air sample. Samples are analyzed in the Selected Ion Monitoring (SIM) mode using deuterated bromomethane (bromomethane-d3) and toluene (toluene-d8) as internal standards.

3. INTERFERENCES/LIMITATIONS

Interferences may result from improperly cleaned canisters. Analysis of samples containing high concentrations of method analytes may cause significant contamination of the analytical equipment. Co-eluting compounds trapped during sample collection may interfere.

4. EQUIPMENT AND CONDITIONS

A. Instrumentation

Hewlett Packard 6890 Series Plus gas chromatograph:
Column: Restek Rtx-200, 60 meter, 0.32mm I.D., 1.50 micron film thickness
GC temperature program: initial -10^{o} C, initial time 0 minutes, to 80^{o} C @ 10^{o} C/min, to 200^{o} C @ 25^{o} C/min, hold 1 minute, to 240 ^{o} C @ 25^{o} C/min, hold 1 minute.
Carrier Gas: Helium, grade 5

Hewlett Packard 5973 mass selective detector:
Acquisition Mode: SIM
Tune File: PFTBA Autotune
Ions Monitored: 74.8, 93.8, 95.8, 96.8, 98.8, 110.0
Quant Ions: 74.8, 93.8
Solvent Delay: 5.00 min

Varian Stand Alone cryogenic concentrator:
Valve Oven: 60^{o} C

Autosampler Oven: 60^{o} C
Nafion Dryer: 60^{o} C
Sample Line: 60^{o}
Cryotrap: -180^{o} C to 150^{o}
Transfer Line: 150^{o} C
Cryofocus: -180^{o} C to 150^{o} C
Sample Size: 15 ml to 400 ml
Internal Standard Loop: 1 ml

B. Auxiliary Apparatus

Compressed helium: grade five
Compressed air: ultra zero grade
Compressed nitrogen: grade five
Liquid nitrogen
Gas standards: certified if available
Restek, 6.0 liter Silcosteel canisters: with silcosteel valve
Pressure gauge: able to measure –30mm to 30 psig
Canister cleaning system (see appendix)

5. ANALYSIS OF SAMPLES

1) Perform a PFTBA autotune and evaluate tune criteria (Appendix 2). Place a copy of the autotune results in the autotune folder.
2) Check and record the pressure of the field sample canisters. Pressurize the field sample canisters to approximately 5 psig with ultra pure nitrogen. Record the final pressure.
3) Prepare a sample sequence for the GC/MS. The sequence should include a calibration check, a system blank and a duplicate for every 10 samples. Load the sequence into the GC/MS in the remote start mode.
4) Prepare a sample sequence for the Varian sampler. Organize the sample sequence as follows: system blank, calibration check, field samples, duplicate field sample, calibration check. If the calibration check is not within $\pm$20% of its expected value the system must be evaluated and recalibrated if necessary.
5) Attach the sample canisters to the Varian autosampler ring as per the sequence. Execute the sequence.
6) Sample analysis report will print out after each analysis.

CALCULATIONS: Sub-ambient sampling requires pressurization prior to analysis. Instrument reports will be in units of ng/m3 and must be corrected for the analysis dilution using the following calculation:

(Fp / Ip) X Ci = Cr

Ip = initial canister pressure in mm Hg
Fp = final canister pressure in mm Hg
Ci = concentration from the analysis report in ng/m3
Cr = reported concentration in ng/m3

6. QUALITY ASSURANCE

A. Instrument Reproducibility

Establish the reproducibility of the instrument and analytical method as follows. Inject five replicate samples of each target compound at three concentrations (low, mid and high range). Reproducibility study results are presented in Table 1.

B. Linearity

A six-point calibration curve is made for each of the target compounds. The curve is constructed using linear regression analysis. Appendix 3 contains method calibration data.

C. Minimum Detection Limit

Detection Limit is based on US EPA MDL calculation. Using the analysis of seven replicates of a low-level spikes, the method detection limit (MDL), and the estimated quantitation limit (EQL) for method compounds are calculated by:

$$MDL = 3.14*s$$
$$EQL = 5*MDL$$

where: s = the standard deviation of the response calculated for the seven replicate spikes. The MDL and EQL are calculated as follows.

bromomethane MDL = 3.14 (0.0015 ug/m3) = 0.0047 ug/m3
EQL = 5(0.0047 ug/m3) = 0.024 ug/m3

cis-1,3-dichloropropene MDL = 3.14 (0.0007 ug/m3) = 0.0021 ug/m3
EQL = 5(0.0021 ug/m3) = 0.010 ug/m3

trans-1,3-dichloropropene MDL = 3.14 (0.001 ug/m3) = 0.0031 ug/m3
EQL = 5(0.0031 ug/m3) = 0.015 ug/m3

Assuming a 1:1.5 dilution to pressurize ambient samples:

Bromomethane EQL = 1.5 (0.024 ug/m3) = 0.036 ug/m3

cis-1,3-dichloropropene EQL = 1.5 (0.010 ug/m3) = 0.015 ug/m3

trans-1,3-dichloropropene EQL = 1.5 (0.015 ug/m3) = 0.03 ug/m3

Results are reported to 3 significant figures above the EQL. Results below EQL and above MDL are reported as det (detected). Results less than MDL are reported as less than MDL.

D. Calibration Check

A calibration check sample is analyzed at the beginning of each analytical batch and following each batch of ten samples. The value of the check must be ±20 % of the expected value. If the check is outside limits the prior batch of 10 samples must be reanalyzed.

E. Laboratory Control Sample

A laboratory control sample (LCS) is included with each analytical batch. The analysis value of the LCS must be within three standard deviations of it's historical mean (±.3 σ). If the LCS is outside of limits then the samples in the analytical batch must be reanalyzed.

F. Storage Stability

If the method storage stability of target compounds is unknown then a storage stability study should be conducted. The study should be conducted for a time period which represents the maximum hold time for field samples.

7. SAFETY PRECAUTIONS

This procedure does not address all of the safety concerns associated with chemical analysis. It is the responsibility of the analyst to establish appropriate safety and health practices. For hazard information and guidance refer to the material safety data sheets (MSDS) of any chemicals used in this procedure. All applicable safety precautions must be observed for the use of compressed gas cylinders.

8. DISCUSSION:

Table 1

REPRODUCIBILITY STUDY

Low Level	**Bromomethane (ng/m3)**	**Cis-1,3-Dichloropropene (ng/m3)**	**Trans- 1,3-Dichloropropene (ng/m3)**
1	27.7	13.1	12.0
2	28.4	12.7	10.8
3	28.7	11.7	9.5
4	28.8	11.3	9.7
5	27.8	11.4	10.9
Average	**28.3**	**12.0**	**10.6**
SD	**0.51**	**0.81**	**1.01**
RSD	**1.8%**	**6.8%**	**9.5%**
Medium Level			
1	217	118	106
2	214	113	103
3	210	116	105
4	215	109	100
5	215	111	101
Average	**214**	**113**	**103**
SD	**2.56**	**3.65**	**2.50**
RSD	**1.2%**	**3.2%**	**2.4%**
High Level			
1	827	385	355
2	830	387	355
3	851	384	358
4	853	383	355
5	838	413	382
Average	**840**	**391**	**361**
SD	**11.7**	**12.6**	**11.6**
RSD	**1.4%**	**3.2%**	**3.2%**

Notes:
m3 cubic meters
ng nanograms
RSD Relative standard deviation
SD standard deviation

Apppendix 1

CAN CLEANING PROCEEDURE

The canister cleaning procedure uses repeated cycling from –30 inches Hg to 30 pounds per square inch gauge with humidified ultra pure nitrogen. Each cycle is 24 minutes (12 minutes vacuum & 12 minutes pressure) at 80 degrees C. The procedure includes eight complete cycles.

Canister data should be logged into the canister cleaning book for each cleaning batch. When the batch is complete one canister is chosen for analysis. The canister is pressurized with ultra pure nitrogen and analyzed by the GCMS method. If target analytes are not less that two times their MDL the entire batch should be cleaned again.

Procedure:

A. Fill dewar with LN2

1. Remove dewar cover.
2. CAREFULLY place hose from LN2 tank into dewar (Orange and silver container behind oven).
3. Open LN2 tank 3 turns
4. Close tank when LN2 can be seen near top of dewar.
5. CAREFULLY remove hose and replace dewar cover.

B. Turn on the vacuum pump.

1. Switch is located on pump to the left of the can oven.

C. Open N_2 Tank

1. Open regulator on N_2 tank to the left of the can oven.

D. Load cans in oven

1. Attach cans to manifold in oven and tighten.
2. If you are cleaning less than 8 cans the unused ports must be capped.
3. Open the can valve

E. Start Timers Located on top left of can oven

1. Push Auto button on top timer and Auto light should come on. If the light is off, hit the button again and it should light.
2. Push the Run button on the bottom timer. The 1 light should light up briefly then switch to 2. On the top timer the 2 light should light.
3. Push the ADV on the top timer. The 2 light should go off and the 1 light should light. The system should also begin to evacuate.
4. Verify the system evacuates all the way by reading the gauge on the back of the oven. The gauge should go to –30 psi.

F. Fill cans and shutdown system.

1. Close all can valves except the ones you want to fill.
2. On the top timer hit the ADV button until the 2 light comes on.
3. Monitor the pressure of the cans on the gauge on the back of the oven.
4. Close can valves when filled.
5. Close N_2 Regulator
6. Turn off Vacuum pump.
7. Remove cans and place plugs on manifold ports.
8. Hit the stop button on both timers.

Appendix 2

Autotune Criteria

A standard autotune should be performed on the detector each day prior to sample analysis. The autotune report should be evaluated for the following:

1. n unusual change in the EM voltage
2. Peak width for all tune masses should be between 0.4 aAmu and 0.6 amu.
3. The relative abundance of tune mass 219.0 should be greater than 30% of tune mass 69.0.
4. Isotope abundance ratio for tune mass 70.0 should be between 0.54% and 1.6 %; isotope abundance ratio for tune mass 220.0 should be between 3.2% and 5.4%.
5. Masses 28 and 18 should be evaluated to check for air leaks in the system.

If autotune criteria are not met the system should be evaluated for problems. After the system problems are corrected the detector should be autotuned prior to sample analysis. Autotune reports should be filed in the instrument autotune folder.

Appendix 3

Calibration Standard Preparation for Bromomethane and Telone

The certified stock gas used for calibration during this study was purchased from Scott Specialty Gases and has the following specifications:

Cylinder No AAL 2013
Expiration date 8/14/01

BROMOMETHANE	13.1 PPB/M
CIS 1,3-DICHLOROPROPENE	5.05 PPB/M
TRANS 1,3-DICHLOROPROPENE	4.93 PPB/M

Working analysis standard is prepared by diluting the stock gas using the following procedure.

1. A 6 liter Silco canister is evacuated to –30 " Hg.
2. 300 ml of stock gas is transferred to the canister using a gas tight syringe.
3. 100 ul of reagent grade water is added to the canister using a syringe and syringe adapter.
4. The canister is pressurized to 29.4 psig with ultra pure nitrogen.

The canister will contain analytes at the following concentrations:

BROMOMETHANE	0.847 ug/m3
CIS 1,3-DICHLOROPROPENE	0.382 ug/m3
TRANS 1,3-DICHLOROPROPENE	0.343 ug/m3

The standard sample injection is 400 ml. A calibration curve is generated by using the cryo sampler to introduce the following volumes of working standard to the GCMS.

Volume	methylbromide	cis 1,3-DCP	trans 1,3-DCP
400 ml	0.847 ug/m3	0.382 ug/m3	0.343ug/m3
200 ml	0.423 ug/m3	0.191 ug/m3	0.171 ug/m3
100 ml	0.212 ug/m3	0.095 ug/m3	0.086 ug/m3
50 ml	0.106 ug/m3	0.048 ug/m3	0.043 ug/m3
25 ml	0.053 ug/m3	0.024 ug/m3	0.021 ug/m3
15 ml	0.032 ug/m3	0.014 ug/m3	0.013 ug/m3

Attachment III

Draft
Standard Operating Procedure
Sampling and Analysis of Bromomethane In Silco Canisters
(**higher concentration range method**)

California Environmental Protection Agency

Air Resources Board

Special Analysis Section
Northern Laboratory Branch
Monitoring and Laboratory Division

Draft
Standard Operating Procedure
Sampling and Analysis of Bromomethane In Silco Canisters

version
July 26, 2000

Approved by:

1. SCOPE

This method is for the sampling and analysis of Methyl Bromide in ambient air using 6 liter Silco canisters for sample collection. Collected samples are analyzed by gas chromatography/mass spectrometry.

2. SUMMARY OF METHOD

Ambient air is collected into evacuated 6 liter Silco canisters. Field sampling uses a subatmospheric pressure collection mode. Sample canisters are pressurized in the laboratory to facilitate laboratory sampling. Samples are analyzed by Gas Chromatography / Mass Spectrometry (GC/MS) using a cryogenic concentrator to prepare the air sample. Samples are analyzed in the Selected Ion Monitoring (SIM) mode using deuterated bromomethane (bromomethane-d3) as an internal standard.

3. INTERFERENCES/LIMITATIONS

Interferences may result from improperly cleaned canisters. Analysis of samples containing high concentrations of bromomethane may cause significant contamination of the analytical equipment. Co-eluting compounds trapped during sample collection may interfere.

4. EQUIPMENT AND CONDITIONS

A. Instrumentation

Hewlett Packard 6890 Series Plus gas chromatograph:
Detector: 280^{o} C
Injector: 220^{o} C
Column: J&W DB-624, 60 meter, 0.25mm I.D., 1.40 micron film thickness
GC temperature program: initial 40^{o} C, initial time 5.0 minutes, to 80^{o} C @ 10^{o} C/min, to 200^{o} C @ 25^{o} C/min
Carrier Gas: Helium, zero grade

Hewlett Packard 5973 mass selective detector:
Acquisition Mode: SIM
Tune File: PFTBA Autotune
Ions Monitored: 93.8, 95.8, 96.8, 98.8
Solvent Delay: 5.00 min

Nuteck 3550A cryogenic concentrator:
Valve Oven: 60^{o}
Autosampler Oven: 50^{o}
Nafion Dryer: ambient

Sample Line: 100^{o}
Cryotrap: -160^{o} C to 150^{o}
Transfer Line: 150^{o} C
Cryofocus: -175^{o} C to 150^{o} C
Sample Size: 400 ml
Internal Standard Loop: 2 ml

B. Auxiliary Apparatus

Compressed helium: zero grade
Compressed air: ultra zero grade
Compressed nitrogen: zero grade
Liquid nitrogen for cryogenic concentrator
Certified bromomethane standard
Restek, 6.0 liter Silcosteel canisters with silcosteel valve
Pressure gauge, -30mm to 30 psig
Canister cleaning system (Appendix 1)

6. ANALYSIS OF SAMPLES

7) Perform a PFTBA autotune and evaluate tune criteria (Appendix 2). Place a copy of the autotune results in the autotune folder.
8) Check and record the pressure in the field sample canisters. Pressurize the field sample canisters to approximately 5 psig with ultra pure nitrogen. Record the final pressure.
9) Prepare a sample sequence for the GC/MS. The sequence should include a calibration check, a system blank and a duplicate for every 10 samples. Load the sequence into the GC/MS in the remote start mode.
10) Prepare a sample sequence for the Nuteck.. The sample sequence should organized as follows: system blank, calibration check, field samples, duplicate field sample, calibration check. If the calibration check is not within 20% of it's assigned value the system must be recalibrated.
11) Attach the sample canisters to the Nuteck autosampler ring as per the sequence. Execute the Nuteck sequence.
12) Sample analysis report will print out after each analysis.

CALCULATIONS: Sub-ambient sampling requires pressurization prior to analysis. Instrument reports will be in units of ug/m3 and must be corrected for the analysis dilution using the following calculation:

$$(Fp / Ip) \times Ci = Cr$$

Ip = initial canister pressure in mm Hg
Fp = final canister pressure in mm Hg

Ci = concentration from the analysis report in ug/m3
Cr = reported concentration in ug/m3

7. QUALITY ASSURANCE

B. Instrument Reproducibility

Establish the reproducibility of the instrument and analytical method as follows. Inject five replicate samples of bromomethane standard at three concentrations (low, mid and high range). Reproducibility study results are presented in Table 1.

B. Linearity

A 6-point calibration was performed on 7/25/2000. Calibrators from 0.027 to 0.861 ug/m3 (Appendix 3) were used to construct a calibration curve by linear regression analysis.

Response Ratio = 9.56 e +001 x Amount + 2.63 e -001

R2 = 0.999

C. Minimum Detection Limit

Detection Limit is based on US EPA MDL calculation. Using the analysis of seven replicates of a low-level spikes, the method detection limit (MDL), and the estimated quantitation limit (EQL) for bromomethane is calculated by:

MDL = 3.14*s

EQL = 5*MDL

where: s = the standard deviation of the response calculated for the seven replicate spikes. Given s = 0.0015 ug/m3 for the seven samples, the MDL and EQL are calculated as follows.

MDL = 3.14 (0.0015 ug/m3) = 0.0047 ug/m3

EQL = 5(0.0047 ug/m3) = 0.024 ug/m3

Assuming a 1:1.5 dilution to pressurize ambient samples:

EQL = 1.5 (2.4 ug/m3) = 0.036 ug/m3

Results are reported to 3 significant figures above the EQL. Results below EQL

and above MDL are reported as det (detected). Results less than MDL are reported as less than MDL.

D. Storage Stability

Conduct a storage stability study of bromomethane over a 3-week period. Four (4) canisters are spiked with bromomethane at approximately 0.5 ppb. The spiked canisters are stored at ambient temperature and analyzed on storage weeks 0, 1, 2, 3. Restek conducted a stability study for methyl bromide in Silco cans and demonstrated that it is stable at 1 ppbv for at least 16 days. A Special Analysis Section stability study is currently being conducted.

E. Safety Precautions

This procedure does not address all of the safety concerns associated with chemical analysis. It is the responsibility of the analyst to establish appropriate safety and health practices. For hazard information and guidance refer to the material safety data sheets (MSDS) of any chemicals used in this procedure. All applicable safety precautions must be observed for the use of compressed gas cylinders.

DISCUSSION:

Table 1

REPRODUCIBILITY STUDY

Low Level	**Methyl Bromide (ng/m3)**	**Cis-1,3-Dichloropropene (ng/m3)**	**Trans- 1,3-Dichloropropene (ng/m3)**
1	48.59	48.47	47.90
2	47.48	42.51	41.97
3	49.49	39.05	43.09
4	47.77	38.93	40.30
5	46.06	49.49	48.05
Average	**47.88**	**43.69**	**44.26**
SD	**1.283**	**5.05**	**3.53**
RSD	**2.68**	**11.56**	**7.98**
Medium Level			
1	168.51	145.90	123.36
2	175.56	145.13	123.95
3	170.05	143.84	123.68
4	170.32	148.41	129.57
5	166.02	146.34	128.35
Average	**170.09**	**145.92**	**125.78**
SD	**3.50**	**1.68**	**2.94**
RSD	**2.06**	**1.15**	**2.34**
High Level			
1	859.54	933.33	965.97
2	873.08	938.40	965.55
3	858.87	949.98	972.94
4	841.56	933.93	961.24
5	852.66	943.24	1,004.36
Average	**857.14**	**939.78**	**974.01**
SD	**11.46**	**6.96**	**17.48**
RSD	**1.34**	**0.74**	**1.79**

Notes:
m3 cubic meters
ng nanograms
RSD Relative standard deviation
SD standard deviation

Appendix

Appendix 1

CAN CLEANING PROCEEDURE

The canister cleaning procedure uses repeated cycling from –30 inches Hg to 30 pounds per square inch gauge with humidified ultra pure nitrogen. Each cycle is 24 minutes (12 minutes vacuum & 12 minutes pressure) at 80 degrees C. The procedure includes eight complete cycles.

Canister data should be logged into the canister cleaning book for each cleaning batch. When the batch is complete one canister is chosen for analysis. The canister is pressurized with ultra pure nitrogen and analyzed by the GCMS method. If target analytes are not less that two times their MDL the entire batch should be cleaned again.

Procedure:

A. Fill dewar with LN2

6. Remove dewar cover.
7. CAREFULLY place hose from LN2 tank into dewar (Orange and silver container behind oven).
8. Open LN2 tank 3 turns
9. Close tank when LN2 can be seen near top of dewar.
10. CAREFULLY remove hose and replace dewar cover.

B. Turn on the vacuum pump.

2. Switch is located on pump to the left of the can oven.

C. Open N_2 Tank

2. Open regulator on N_2 tank to the left of the can oven.

D. Load cans in oven

4. Attach cans to manifold in oven and tighten.
5. If you are cleaning less than 8 cans the unused ports must be capped.
6. Open the can valve

E. Start Timers Located on top left of can oven

5. Push Auto button on top timer and Auto light should come on. If the light is off, hit the button again and it should light.
6. Push the Run button on the bottom timer. The 1 light should light up briefly then switch to 2. On the top timer the 2 light should light.
7. Push the ADV on the top timer. The 2 light should go off and the 1 light should

light. The system should also begin to evacuate.

8. Verify the system evacuates all the way by reading the gauge on the back of the oven. The gauge should go to –30 psi.

F. Fill cans and shutdown system.

8. Close all can valves except the ones you want to fill.
9. On the top timer hit the ADV button until the 2 light comes on.
10. Monitor the pressure of the cans on the gauge on the back of the oven.
11. Close can valves when filled.
12. Close N_2 Regulator
13. Turn off Vacuum pump.
14. Remove cans and place plugs on manifold ports.

8. Hit the stop button on both timers.

Appendix 2

Autotune Criteria

A standard autotune should be performed on the detector each day prior to sample analysis. The autotune report should be evaluated for the following:

6. n unusual change in the EM voltage
7. Peak width for all tune masses should be between 0.4 aAmu and 0.6 amu.
8. The relative abundance of tune mass 219.0 should be greater than 30% of tune mass 69.0.
9. Isotope abundance ratio for tune mass 70.0 should be between 0.54% and 1.6 %; isotope abundance ratio for tune mass 220.0 should be between 3.2% and 5.4%.
10. Masses 28 and 18 should be evaluated to check for air leaks in the system.

If autotune criteria are not met the system should be evaluated for problems. After the system problems are corrected the detector should be autotuned prior to sample analysis. Autotune reports should be filed in the instrument autotune folder.

Appendix 3

Calibration Standard Preparation for Bromomethane and Telone

The certified stock gas used for calibration during this study was purchased from Scott Specialty Gases and has the following specifications:

Cylinder No ALM057764
Expiration date 11/17/00

BROMOMETHANE	5.77 PPB/M
CIS 1,3-DICHLOROPROPENE	5.45 PPB/M
TRANS 1,3-DICHLOROPROPENE	5.45 PPB/M

Working analysis standard is prepared by diluting the stock gas using the following procedure.

5. A 6 liter Silco canister is evacuated to –30 " Hg.
6. 692 ml of stock gas is transferred to the canister using a gas tight syringe.
7. 100 ul of reagent grade water is added to the canister using a syringe and syringe adapter.
8. The canister is pressurized to 29.4 psig with ultra pure nitrogen.

The canister will contain analytes at the following concentrations:

BROMOMETHANE	0.861 ug/m3
CIS 1,3-DICHLOROPROPENE	0.953 ug/m3
TRANS 1,3-DICHLOROPROPENE	0.953 ug/m3

The standard sample injection is 400 ml. A calibration curve is generated by using the cryo sampler to introduce the following volumes of working standard to the GCMS.

Volume	methylbromide	cis 1,3-DCP	trans 1,3-DCP
400 ml	0.861 ug/m3	0.953 ug/m3	0.953 ug/m3
200 ml	0.431 ug/m3	0.476 ug/m3	0.476 ug/m3
100 ml	0.215 ug/m3	0.238 ug/m3	0.238 ug/m3
50 ml	0.108 ug/m3	0.119 ug/m3	0.119 ug/m3
25 ml	0.054 ug/m3	0.060 ug/m3	0.060 ug/m3
15 ml	0.032 ug/m3	0.036 ug/m3	0.036 ug/m3

Attachment IV

Draft
Standard Operating Procedure
Sampling and Analysis of 1,3-dichloropropene (Telone) and
Methyl Isothiocyanate (MITC) in Application and Ambient Air
using Gas Chromatography/Mass Selective Detector

California Environmental Protection Agency

Air Resources Board

Draft
Standard Operating Procedure
Sampling and Analysis of 1,3-dichloropropene (Telone) and Methyl Isothiocyanate (MITC) in Application and Ambient Air using Gas Chromatography/Mass Selective Detector

Special Analysis Section
Northern Laboratory Branch
Monitoring and Laboratory Division

06/25/01 version

Approved by:

3. SCOPE

The method uses resin tubes and a gas chromatograph/mass selective detector for the determination of 1,3- dichloropropene (Telone) and methyl isothiocyanate (MITC), one of the breakdown products of Metam-Sodium, for application and ambient air sample analysis. The Department of Pesticide Regulation (DPR) asked the Air Resources Board (ARB) to do ambient and application monitoring of Telone and MITC at a requested quantitation limit of 0.5 $\mu g/m^3$ for MITC.

2. SUMMARY OF METHOD

Coconut based charcoal tubes are placed on the sampler for 24 hours at 3.0 liters per minute (LPM) flow rate. The samples are stored in an ice chest or refrigerator until extracted with 3 ml of dichloromethane (DCM). The injection volume is 1 μl. A gas chromatograph with a mass selective detector in the selected ion monitoring (SIM) mode is used for analysis.

3. INTERFERENCES/LIMITATIONS

The primary interference encountered with the previous method was the presence of the MITC near the cis-DCP. The retention time difference is only about 0.05 minutes and even operating in SIM mode, similar ions are detected by the instrument. This makes it difficult to accurately quantitate if both cis-DCP and MITC are present. The installation of a different column than that used in the previous method resolved the issue and easily separates the target compounds. As with any method, additional interferences may be caused by contaminants in solvents, reagents, glassware and other processing apparatus that can lead to discrete artifacts or elevated baselines. Method blanks, both solvent and resin, must be run concurrently with each batch of samples to detect any possible interferences.

4. EQUIPMENT AND CONDITIONS

A. INSTRUMENTATION:

Hewlett-Packard 6890 Series gas chromatograph
Hewlett-Packard 5973 Network mass selective detector
Hewlett-Packard 6890 Enhanced Parameters ALS

MS Transfer line: 280°C
Injector: 210 °C, Splitless, Liner 4 mm straight liner with glass wool.
Column: Restek Rtx-200, 60 meter, 320 μm i.d., 1.5 μm film thickness.

GC Temperature Program: Oven initial 40 °C, hold 4 min. Ramp to 220 °C @ 12 °C/min., hold 1 min., ramp to 240 °C @ 20 °C/min., hold 2.0 min. Retention time: cis-DCP= 11.63 min., trans-DCP= 12.10 min., MITC=12.23 min.

Splitter open @ 1.0 min.
Flows: Column: He, 1.6 ml/min, 9.1psi. (velocity: 32cm/sec)
Splitter: 50 ml/min.

Mass Spectrometer: Electron Ionization
Selective Ion Monitoring: dichloropropene: 75 (quant. ion 100%), 110 (qual. ion 30%); methyl isothiocyanate: 73 (quant. ion 100%), 72 (qual. ion 46%). Tuning: PFTBA on masses 69, 219, 502.

B. Auxiliary Apparatus

1. Precleaned vials, 8 ml capacity with teflon caps.
2. Whatman filters, 0.45 μm
3. Disposable syringes, 3 ml
4. Sonicator
5. GC vials with septum caps.

C. Reagants

1. Dichloromethane, Pesticide grade or better.
2. 1,3 -Dichloropropene (cis- and trans- mixture), Chem Service PS- 1 52, 99 (+) % or equiv.
3. Methyl Isothiocyanate, Chem Service MET-221A, 99.5%
4. Coconut charcoal sorbent tubes, SKC, Fullerton, CA #226-09.

5. ANALYSIS OF SAMPLES

1. A daily manual tune shall be performed using PFTBA. The instrument is tuned using masses: 69, 219, 502. The criterion for the tune are the peak widths at ½ the peak height, 0.60 ± 0.05, and the criteria for relative abundance: 69:100%, 219:100-120%, and 502: 7-12%.

2. It is necessary to analyze a solvent blank with each batch of samples. The blank must be free of interferences. A solvent blank must be analyzed after any sample which may result in possible carry-over contamination.

3. A 5-point calibration curve shall be analyzed with each batch of samples. For dichloropropene the analysis is calibrated at 10, 20, 40, 60, 100 ng/ml cis and

trans. For methyl isothiocyanate the calibration is at 0.5, 1.0, 2.0, 3.0, 5.0 μg/ml.

4. With each batch of samples analyzed, a laboratory blank and a laboratory control spike will be run concurrently. A laboratory blank is an unexposed charcoal tube prepared and analyzed the same way the samples are analyzed. A laboratory control spike is a charcoal tube spiked with a known amount of standard. The control sample is prepared and analyzed the same way as the samples. Laboratory check samples should have recoveries that are at least 70% of the theoretical spiked value.

5. A DCP calibration check sample of 10 ng/ml is run after the calibration and every 10 samples and at the end of each sample batch. The calibration check for MITC is 0.75 μg/ml. The value of the check must be within $\pm 3\sigma$ (the standard deviation) or $\pm$10% of the expected value, whichever is greater. If the calibration check is outside the limit, then those samples in the batch after the last calibration check that was within the limit need to be reanalyzed.

6. Score and snap the sample tube, transfer the charcoal into a 8 ml vial. (Save the back-up bed for future analysis if necessary.) Rinse the tube with 3.0 ml of DCM into the extraction vial. Cap and place the vial in the sonicator for 1 hour.

7. Filter the samples using a 3 ml syringe and 0.45 μm filter directly into a GC vial and cap securely.

8. The atmospheric concentration is calculated according to:

Conc (ng/m^3) = Extract Conc (ng/ml) X 3 ml / Air Volume Sampled (m^3)

8. QUALITY ASSURANCE

A. Instrument Reproducibility

The reproducibility of the instrument and analytical method was established by analyzing five(5) 1.0 μl injections of dichloropropene and methyl isothiocyanate standard at three concentrations (low, mid, and high range). The low, mid and high concentrations of dichloropropene were 10, 40 and 100 ng/ml, respectively. The low, mid and high concentrations of methyl isothiocyanate were 0.5, 2.0 and 5.0 μg/ml, respectively.

B. Calibration

The five-point calibration curve is constructed for each compound using linear regression analysis. A curve cannot be used if its correlation coefficient is less than 0.995.

C. Calibration Check

A calibration check control is run after the calibration and every 10 samples and at the end of the sample batch to verify the system is in calibration. The value of the check must be within $\pm 3\sigma$ (the standard deviation) or $\pm$10% of the expected value, whichever is greater. If the calibration check is outside the limit, then those samples preceding the out of limit check need to be reanalyzed.

D. Minimum Detection Limit

Detection limits are based on US EPA MDL calculation. Using the analysis of seven (7) replicates of a low-level matrix spike, the method detection limit (MDL) and the estimated quantitation limit (EQL) for 1,3-dichloropropene is calculated by: MDL = 3.14*(std dev values), where std dev = the standard deviation of the concentration calculated for the seven replicate spikes. For dichloropropene, the MDL is 2.0 ng/ml for each isomer. EQL, defined as 5*MDL, is 10 ng/ml based on a 3 ml extraction volume. For methyl isothiocyanate, the MDL is 0.04 μg/ml with an EQL of 0.22 μg/ml. Results above the EQL are reported to 3 significant figures. Results below EQL but above the MDL are reported as DET (detected) and results less than the MDL are ND (nondetect).

E. Collection and Extraction Efficiency (Recovery)

The target compounds at a low and high level are spiked on charcoal tubes (3 at each concentration). The spiked tubes are placed on field samplers with airflows of 3 LPM for 24 hours. The samples are extracted with DCM and prepared as described in section 5, #6-7. The average percent recovery should be $\pm$ 20% of the expected value. Normal recoveries for DCP were found to be greater than 90%. Normal recoveries for MITC are greater than 85%.

F. Storage Stability

Storage stability studies were completed in the previous analysis and not continued further here. All analyses are to be completed within 4 days of receipt.

G. Breakthrough

No breakthrough analysis was done for DCP. The breakthrough was checked for MITC since the field sampling flow rate was set to 3 LPM. The recovery of charcoal

tubes spiked at 5.0 μg/ml was greater than 85% with no MITC detected in the secondary beds.

H. Safety

This procedure does not address all of the safety concerns associated with chemical analysis. It is the responsibility of the analyst to establish appropriate safety and health practices. For hazard information and guidance refer to the material safety data sheets (MSDS) of any chemicals used in this procedure.

Attachment V

Draft
Standard Operating Procedure
Sampling and Analysis of Methyl Isocyanate in Application and Ambient Air using High Performance Liquid Chromatography with a Fluorescence Detector

California Environmental Protection Agency

Air Resources Board

Draft
Standard Operating Procedure
Sampling and Analysis of Methyl Isocyanate in Application and Ambient Air using High Performance Liquid Chromatography with a Fluorescence Detector

Special Analysis Section
Northern Laboratory Branch
Monitoring and Laboratory Division

06/25/01 version

Approved by:

4. SCOPE

The analysis of methyl isocyanate (MIC), a degradation product of the soil fumigant metam-sodium, is based on OSHA Method 54 using a high-performance liquid chromatograph with a fluorescence detector. This method analyzes application and ambient air samples for MIC using XAD-7 resin tubes coated with 1-(2-pyridyl) piperazine, a derivatizing agent. The Department of Pesticide Regulation (DPR) asked the Air Resources Board (ARB) to do ambient monitoring of MIC at a requested quantitation limit of 0.05 $\mu g/m^3$ and application monitoring at a quantitation limit of 0.1 $\mu g/m^3$.

2. SUMMARY OF METHOD

Resin tubes, XAD-7 coated with 1-(2-pyridyl)piperazine, are placed on the sampler for 24 hours at a flowrate of 75 milliliters per minute (mLPM). The samples are stored in an ice chest or refrigerator until extracted with 3 ml of acetonitrile (ACN). The injection volume is 0.01 mL. A high performance liquid chromatograph (HPLC) with a fluorescence detector is used for the analysis.

3. INTERFERENCES/LIMITATIONS

Interferences may be caused by contaminants in solvents, reagents, glassware and other processing apparatus that can lead to discrete artifacts or elevated baselines. For this method the derivatizing agent, 1-(2-pyridyl)piperazine, is an additonal factor in possible interfences. A method blank, including both solvent and resin, must be analyzed with each batch of samples to detect any possible interferences.

4. EQUIPMENT AND CONDITIONS

A. Instrumentation:

Dionex LC20 Chromatography Module
Dionex GP50 Gradient Pump
Dionex AS40 Autosampler
Dionex RF-2000 Fluorescence Detector: 240 nm excitation, 370 nm emission. Sensitivity: medium; Gain: 1

Eluant: Acetonitrile (ACN) and 25 mM Ammonium Acetate (NH_4 AC), pH 6.1. Gradient: 5% ACN/95% NH_4 AC to 30%ACN/70% NH_4 AC in 20 minutes. Flowrate: 1.0 mL/min.

Column: Restek Ultra PFP, 4.6 mm i.d. x 250 mm, 5 μm.

B. Auxiliary Apparatus

6. Precleaned vials, 8 ml capacity with teflon caps.
7. Whatman filters, 0.45 μm
8. Disposable syringes, 3 ml
9. Sonicator
10. Dionex Polyvials with filter caps, 0.5 mL.

C. Reagants

5. Acetonitrile, HPLC/Pesticide grade or better.
6. Ammonium Acetate, 99.99%.
7. Glacial Acetic Acid, HPLC Grade or better.
8. Nanopure Water, Type I
9. 1-(2-Pyridyl)piperazine, 99.5+% or better.
10. Methyl Isocyanate, Chem Service #O-2179, 99+%.
11. XAD-7 resin sorbent tubes, coated with 1-(2-pyridyl)piperazine. Supelco ORBO 657, 80/40 mg, Bellefonte, PA.

5. ANALYSIS OF SAMPLES

9. The instrument is equilibrated for approximately one (1) hour before analysis of samples. Check that the volume in the eluant reservoirs is sufficient for the sample batch.

10. It is necessary to analyze a solvent blank and a resin blank with each batch of samples to ascertain the presence of possible interferences.

11. A 6-point calibration curve is analyzed with each batch of samples. For the ambient and application studies the calibration will be 0.013 to 0.260 μg/mL of the purified MIC derivative. (See section 6.0 B for the preparation of the purified derivative.)

12. A calibration check sample of 0.078 μg/ml is run after the calibration and every 10 samples and at the end of the sample batch. The value of the calibration check must be within $\pm 3\sigma$ (the standard deviation) or $\pm$10% of the expected value, whichever is greater. If the calibration check is outside this limit then those samples in the batch after the last calibration check that was within limits need to be reanalyzed.

13. With each batch of samples analyzed, a laboratory resin blank and a laboratory control spike will be run concurrently. A laboratory blank is XAD-7 extracted and

analyzed the same way as the samples. A laboratory control spike is XAD-7 spiked with a known amount of MIC. The laboratory control sample is extracted and analyzed the same way as the samples.

14. Score and snap the sample resin tube, transfer the resin into an 8 ml vial. (Save the second tube for future analysis if necessary.) Rinse the tube with 3.0 ml of ACN into the extraction vial. Cap and place the vial in the sonicator for 1 hour.

15. Filter the samples using 0.45 μm filter attached to a 3 ml syringe directly into a Dionex sampling vial and cap securely. Cap and refrigerate the remaining solution vial if necessary for further analysis.

16. The atmospheric concentration is calculated according to:

Conc ($\mu g/m^3$) = Extract Conc (μg/ml) X 3 ml / Air Volume Sampled (m^3)

9. QUALITY ASSURANCE

A. Instrument Reproducibility

The reproducibility of the instrument has been established by analyzing five (5) injections of MIC-derivative standard at three concentrations (low, mid, and high). The low, mid, and high concentrations were 0.013, 0.078 and 0.260 μg/ml, respectively.

B. Purified Derivative and Calibration

1. The purified MIC derivative is prepared as described in OSHA Method 54, section 3.3.1. A stock standard is prepared by dissolving the MIC derivative into ACN. The derivative is expressed as free MIC by multiplying the amount of MIC urea weighed by the conversion factor 0.2590. (See OSHA Method 54, section 3.3.2)

2. A six (6)-point calibration curve is made at 0.013, 0.026, 0.052, 0.078. 0.134, and 0.260 μg/ml of the MIC derivative.

C. Calibration Check

A calibration check sample is run after the calibration, after every 10 samples and at the end of the sample batch to verify the system is in calibration. The value of the check must be within $\pm 3\sigma$ (the standard deviation) or ±10% of the expected value, whichever is larger. If the calibration check is outside the limit, then those samples

in the batch after the last calibration check that was within the limit need to be reanalyzed.

D. Minimum Detection Limit

The detection limit is based on US EPA MDL calculation. The method detection limit (MDL) and the estimated quantitation limit (EQL) for methyl isocyanate is calculated by the analysis of seven (7) replicates of a low-level matrix spike. The MDL = 3.14*(std dev values), where std dev = the standard deviation of the concentration calculated for the seven replicate spikes. For MIC the MDL is 0.009 μg/sample (0.003 μg/mL). EQL, defined as 5*MDL, is 0.045 μg/sample (0.015 μg/mL) based on a 3 ml extraction volume. Results above the EQL are reported to 3 significant figures. Results below EQL but above the MDL are reported as DET (detected) and results less than the MDL are reported as ND (nondetect).

E. Collection and Extraction Efficiency (Recovery)

Methyl isocyanate at a low and high level are spiked on XAD-7 tubes. The spiked tubes are placed on field samplers with airflows of 75 mLpm for 24 hours. The samples are extracted with ACN and prepared as described in section 5, #6-7. The recovery of MIC for this method is low, ranging 50% to 70%. At concentrations above 1.0 μg/mL the recovery is greater than 70%.

F. Storage Stability

Storage stability will be run concurrent with analysis of samples.

H. Breakthrough

A low sample flow rate is required for this method and optimization of the bed weights with the derivatizing agent is necessary to capture the MIC and minimize interference.

H. Safety

This procedure does not address all of the safety concerns associated with chemical analysis. It is the responsibility of the analyst to establish appropriate safety and health practices. For hazard information and guidance refer to the material safety data sheets (MSDS) of any chemicals used in this procedure.

Attachment VI

Draft
Standard Operating Procedure
Sampling and Analysis of Trichloronitromethane (Chloropicrin) in Application and Ambient Air using Gas Chromatography/Mass Selective Detector

California Environmental Protection Agency

Air Resources Board

Draft
Standard Operating Procedure
Sampling and Analysis of Trichloronitromethane (Chloropicrin) in Application and Ambient Air using Gas Chromatography/Mass Selective Detector

Special Analysis Section
Northern Laboratory Branch
Monitoring and Laboratory Division

06/25/01 version

Approved by:

5. SCOPE

The current method is for the analysis of trichloronitromethane (TCNM) using a gas chromatograph/mass selective detector. The procedure is for the analysis of application and ambient air monitoring of TCNM using XAD-4 resin tubes. The Department of Pesticide Regulation (DPR) asked the Air Resources Board (ARB) to analyze for TCNM during agricultural/structural application with a requested quantitation limit of 1.0 $\mu g/m^3$ and ambient monitoring with a quantitation limit of 0.1 $\mu g/m^3$.

2. SUMMARY OF METHOD

Resin tubes, XAD-4, are placed on the sampler for 24 hours at a flowrate of 0.1 liters per minute (LPM or 100 mLPM). The samples are stored in an ice chest or refrigerator until extracted with 3 ml of dichloromethane (DCM). The injection volume is 1 μl. A gas chromatograph with a mass selective detector in the selected ion monitoring (SIM) mode is used for analysis.

3. INTERFERENCES/LIMITATIONS

Interferences may be caused by contaminants in solvents, reagents, glassware and other processing apparatus that can lead to discrete artifacts or elevated baselines. A method blank, including both solvent and resin, must be analyzed with each batch of samples to detect any possible interferences.

4. EQUIPMENT AND CONDITIONS

A. INSTRUMENTATION:

Hewlett-Packard 6890 Series gas chromatograph
Hewlett-Packard 5973 Network mass selective detector
Hewlett-Packard 6890 Enhanced Parameters ALS

MS Transfer line: 280°C
Injector: 210°C, Splitless, Liner 4 mm straight liner with glass wool.
Column: Restek Rtx-200, 60 meter, 320 μm i.d., 1.5 μm film thickness.

GC Temperature Program: Oven initial 40°C, hold 4 min. Ramp to 220°C @ 12°C/min., hold 1 min., ramp to 240°C @ 20°C/min., hold 2.0 min.
Retention time: TCNM 11.93 min.

Splitter open @ 1.0 min.
Flows: Column: He, 1.6 ml/min, 9.1psi. (velocity: 32cm/sec)
Splitter: 50 ml/min.

Mass Spectrometer: Electron Ionization
Selective Ion Monitoring: trichloronitromethane: 117 (quant. ion 100%), 119 (qual. ion 98%); Tuning: PFTBA on masses 69, 219, 502.

B. Auxiliary Apparatus

11. Precleaned vials, 8 ml capacity with teflon caps.
12. Whatman filters, 0.45 μm
13. Disposable syringes, 3 ml
14. Sonicator
15. GC vials with septum caps.

C. Reagants

12. Dichloromethane, Pesticide grade or better.
13. Trichloronitromethane, Chem Service PS-4, 98.8%
14. XAD-4 resin sorbent tubes, 400/200mg. SKC, Fullerton, CA.

5. ANALYSIS OF SAMPLES

17. A daily manual tune shall be performed using PFTBA. The instrument is tuned using masses: 69, 219, 502. The criterion for the tune are the peak widths at ½ the peak height, 0.60 $\pm$ 0.05, and the criteria for relative abundance; 69:100%, 219:100-120%, and 502: 7-12%.

18. It is necessary to analyze a solvent blank with each batch of samples. The blank must be free of interferences. A solvent blank must be analyzed after any sample which may result in possible carry-over contamination.

19. A 5-point calibration curve shall be analyzed with each batch of samples. For the ambient studies the calibration will be 0.5-50.0 ng/mL and for the application studies 50.0-500 ng/mL.

20. A calibration check sample of 7.5 ng/ml is run after the calibration and every 10 samples and at the end of the sample batch. The value of the calibration check must be within $\pm 3\sigma$ (the standard deviation) or $\pm$10% of the expected value whichever is greater. If the calibration check is outside this limit, then those samples in the batch after the last calibration check that was within limits need to be reanalyzed.

21. With each batch of samples analyzed, a laboratory blank and a laboratory control spike will be run concurrently. A laboratory blank is XAD-4 extracted and analyzed the same way as the samples. A laboratory control spike is XAD-4 spiked with a known amount of standard. The laboratory control sample is

extracted and analyzed the same way as the samples. Laboratory control samples should have recoveries that are greater than or equal to 70% of the theoretical spiked value.

22. Score and snap the sample resin tube, transfer the front bed of the resin tube into a 8 ml vial. (Save the back-up bed for future analysis if necessary.) Rinse the tube with 3.0 ml of DCM into the extraction vial. Cap and place the vial in the sonicator for 1 hour.

23. Filter the samples using 0.45 μm filter attached to a 3 ml syringe directly into a GC vial and cap securely.

24. The atmospheric concentration is calculated according to:

Conc (ng/m^3) = Extract Conc (ng/ml) X 3 ml / Air Volume Sampled (m^3)

10. QUALITY ASSURANCE

A. Instrument Reproducibility

The reproducibility of the instrument and analytical method was established by analyzing five (5) 1.0 μl injections of trichloronitromethane standard at three concentrations (low, mid, and high). The low, mid and high concentrations were 5, 20 and 50 ng/ml, respectively.

B. Calibration

A five-point calibration curve is made ranging from 5.0 ng/ml to 50.0 ng/ml for ambient and 50 ng/ml to 500 ng/ml for application.

C. Calibration Check

A calibration check sample is run after the calibration, after every 10 samples and at the end of the sample batch to verify the system is in calibration. The value of the check must be within $\pm 3\sigma$ (the standard deviation) or $\pm$10% of the expected value whichever is larger. If the calibration check is outside the limit, then those samples in the batch after the last calibration check that was within the limit need to be reanalyzed.

D. Minimum Detection Limit

The detection limit is based on US EPA MDL calculation. Using the analysis of seven (7) replicates of a low-level matrix spike, the method detection limit (MDL)

and the estimated quantitation limit (EQL) for trichloronitromethane is calculated by: MDL = 3.14*(std dev values) where std dev = the standard deviation of the concentration calculated for the seven replicate spikes. For TCNM the MDL is 3.96 ng/sample (1.32 ng/mL). EQL, defined as 5*MDL, is 19.8 ng/sample (6.60 ng/mL) based on a 3 ml extraction volume. Results 4are reported to 3 significant figures. Results below EQL but above the MDL are reported as DET (detected) and results less than the MDL are reported as ND (nondetect).

E. Collection and Extraction Efficiency (Recovery)

Trichloronitromethane at a low and high level are spiked on XAD-4 tubes (3 at each concentration). The spiked tubes are placed on field samplers with airflows of 100 mLpm for 24 hours. The samples are extracted with DCM and prepared as described in section 5, #6-7. The average percent recovery of trichloronitromethane should be $\pm$ 20% of the expected value. The recoveries both for the low and high levels are greater than 80.0%.

F. Storage Stability

Storage stability was set up for a 4-week study. Three (3) XAD-4 tubes each were spiked at the low and high-end concentrations. The tubes were stored in the freezer until analyzed. At the low-end concentrations (5 ng/ml), the recovery for the three spikes averaged 106.8 percent, ranging from 103.68 to 113.68 percent. The average percent recovery peaked after fourteen days and was at the lowest after 28 days. At the high end (50 ng/ml), the recovery for the three spikes averaged 90.237 percent, ranging from 88.904 to 91.996 percent. The average percent recovery peaked at 14 days and was at the lowest at 20 days.

I. Breakthrough

The previous analysis of trichloronitromethane (ARB #A5-169-43) was for 4 hour sampling at 1.0 LPM in September/October, 1986. The current study for ambient monitoring for 24 hours will require a low sample flow rate to meet the requested EQL. A breakthrough analysis study was conducted. The flow rates tested were 1.0, 0.5, 0.2 and 0.1 Lpm. To meet the EQL and minimize breakthrough possibility, the flow rate for the field sampling will be at 100 mLpm.

H. Safety

This procedure does not address all of the safety concerns associated with chemical analysis. It is the responsibility of the analyst to establish appropriate safety and health practices. For hazard information and guidance refer to the material safety data sheets (MSDS) of any chemicals used in this procedure.

Attachment VII

Pesticide Ambient Sampling Procedures
For Canisters

Pesticide Ambient Sampling Procedures
For Canisters

Overview:

-Collect samples for 24 hour periods; Four sampling periods per week per site; Five sampling sites plus an urban background site (e.g., ARB Bakersfield station).

-Start the collocated sample at each site on the second or third sampling period per week.

-Submit 1 trip blank per week (unused, evacuated can, carry on route for 1 day, log-in and ship back with the others).

-With the trip blank there normally will be 31 samples shipped per week.

-4 field spikes will be run at the ARB site (time collocated exactly with the ambient sample. The field spikes will be distributed over the monitoring period (e.g., 1 per week every other week). A trip spike will also accompany each field spike. These field and trip spikes will be delivered to the laboratory with the rest of the samples.

-The field log sheet is filled out as the sampling is conducted. The originals stay in the field binder. Please include a copy with sample shipments. All QA samples must be logged onto the log sheet.

-The canister Data Sheet forms are started by the lab staff before can shipment to the field (beginning pressures, dates, etc. are recorded). The field staff fills out the appropriate portions during sampling and before shipment. The lab staff completes the Data Sheet upon receipt of the samples.

-(Disregard if samples are driven back to Sacramento) The samples are shipped by UPS, regular ground, to 13th and T (e.g., to John Roll but to the attention of Jim Omand/Mike Orbanosky). This is normally done each day, Monday thru Thursday (e.g., along with the PAMS samples from Bakersfield). Review the Data Sheets and log sheet to insure that all documentation is correct and that the appropriate QA samples have been included. A custody seal is filled out and placed on each shipping container.

Sampling Procedure:

Materials that will be needed on the roof to conduct the sampling include:

- -Clip board with log sheets
- -pencils/pens
- -9/16 inch open end wrench
- -allen wrench
- -sample cans with data sheets

-0 to 10 sccpm mass flow meter (MFM) with battery

Figure out your route for sampling the six locations and try to keep this the same throughout the study. In general, try to make each sampling period exactly 24 hours; e.g., if start time is 11:10 then end time should be 11:10. (round off to the nearest 5 minutes.) Due to field logistical issues, the sample period may not always be exactly 24 hours; but that is the target time frame.

Sample Start:
On the way to the first site, plug the MFMs into the batteries. It takes the MFMs about 10 minutes to warm up before they can be used. Leave the MFMs plugged in until the last sample for the day is taken; then unplug for the night to minimize drop in battery charge. Recharge the batteries once per week.

Upon arrival at the site, check in if needed. I suggest a backpack (big enough to hold a canister) and fanny-pack to carry the sampling gear to the roof.

a) check to make sure that the canister valve is closed,
b) remove the ¼ inch brass cap from the inlet of the can,
c) securely attach the canister to the passive sampler, tighten the ¼ inch swagelock fitting,
d) open the canister valve,
e) record the canister pressure; if the can vacuum is **less than –29 ”Hg** (e.g., -25) then replace with a new can (and return the bad one with appropriate comments made on the data sheet). Sometimes the cans will read beyond the scale, e.g., -31 or –32 ”Hg; this is OK. When in doubt use the spare gauge to verify the vacuum reading.

Using the 0 to 10 sccpm MFM measure the flow rate; should be 3.0 sccpm; if the reading is **between 2.95 and 3.05** then record the value on the data sheet. If outside of this range then record the value and adjust the flow back to 3.0 sccpm using an allen wrench. If you have to adjust the flow then note it on the log sheet.

Fill out the Data Sheet and field log sheet, including: log #, start date, time, beginning vacuum reading, any comments, samplers initials, and the general weather conditions (e.g., sunny, cloudy, raining, etc.).

Sample collection and Shipment:
Measure (do not re-set) the flow rates at the end of the sampling period with the MFM; record the end data on the log sheet and data sheet. **Close the can valve! (Do not use excessive force when closing the valve. When the knob stops turning the valve is closed.)** Detach the can from the sampler and put a ¼ inch brass swagelock cap on the can inlet **and tighten**. Put the can back into a shipping container.

Start the collocated (duplicate) samples. These should be started and stopped at the

same times as the regular samples.

Log-in a trip blank (TB), once per week. It doesn't matter which site (or which day) but you can note it in the comment section of the log sheet. Log the TB into the log sheet.

After samples are collected and before shipment, store in the Bakersfield office (i.e., at room temp).

Attachment VIII

Pesticide Ambient Sampling Procedures
For Adsorbent Tubes

Pesticide Ambient Sampling Procedures
For Adsorbent Tubes

Overview:

-Collect samples for 24 hour periods; Four sampling periods per week per site; Five sampling sites plus an urban background site (e.g., ARB Bakersfield station).

-Collect a collocated sample from each site on the second or third sampling period per week.

-Submit 1 trip blank per week, per cartridge type.

-With the trip blank there normally will be 31 samples shipped per week, per cartridge type.

-4 field spikes will be run at the ARB site (time collocated exactly with the ambient sample. The field spikes will be distributed over the monitoring period (e.g., 1 per week every other week). A trip spike will also accompany each field spike. These field and trip spikes will be logged in and shipped along with the regular samples. The field and trip spikes will be kept on dry ice during transport to and storage in the field.

-All samples are stored either in an ice-chest on dry ice or in a freezer.

-The field log sheet is filled out as the sampling is conducted. The originals stay in the field binder. Please include a copy with sample shipments. All QA samples must be logged onto the log sheet.

-The chain of custody (COC) forms are filled out prior to sample shipment; the originals are shipped with the samples; make and retain copies if desired (not necessary).

-(Disregard if samples are driven back to Sacramento) The samples are shipped by UPS, next day delivery, to 13th and T. This is normally done each Monday. The original chain of custody sheets must accompany the samples. The samples are shipped on 5 pounds of dry ice. Review the COCs and log sheet to insure that all documentation is correct and that the appropriate QA samples have been included.

Sampling Procedure:

Materials that will be needed on the roof to conduct the sampling include:

- -Clip board with log sheets
- -pencils/pens
- -sample labels
- -sample cartridges
- -end caps
- -plastic test tubes
- -0 to 100 ccpm mass flow meter (MFM) with battery
- -0 to 5 Lpm mass flow meter (MFM) with battery

Figure out your route for sampling the six locations and try to keep this the same throughout the study. In general, try to make each sampling period 24 hours; e.g., if start time is 11:10 then end time should be 11:10. (round off to the nearest 5 minutes.) The sample period may not always be exactly 24 hours; but that is the target time frame.

Preparation and Set-up

On the way to the first site, plug the MFMs into the batteries. It takes the MFMs about 10 minutes to warm up before they can be used. Leave the MFMs plugged in until the last sample for the day is taken; then unplug for the night to minimize drop in battery charge. Recharge the batteries once per week to be on the safe side.

Upon arrival at the site, check in if needed. Fill out the sample labels for that site. I suggest a backpack and/or fannypacks to carry the stuff to the roof.

Securely attach one adsorbent sample cartridge to the sampling tree. MAKE SURE THE ARROW ON THE CARTRIDGE IS POINTING TOWARDS THE SAMPLE LINE.

Set the rotameter roughly to the appropriate flow rate. Perform the leak check on each sample line by placing a plastic tube cap over the inlet of the cartridge (with the pump on). The rotameter ball should fall to zero. The leak check should be performed before setting the flows with the MFMs.

Using the MFMs set the flow rates exactly to 2.5 Lpm, 90 ccpm and 75 ccpm for the different cartridges.

Make sure that the rain/sun cover is pulled down over the sample tube.

Fill out the log sheet, including: log #, start date, time, start counter reading, leak check OK, any comments and the weather conditions.

Sample collection and Shipment

Measure (do not re-set) the flow rates at the end of the sampling period with the MFMs; leak check the sample lines; record the end data on the log sheet.

Remove the sample cartridge and cap the ends. Attach the sample label like a flag on the secondary end of the tube. Make sure that the label does not cover the glass wool separating the primary and secondary beds in the cartridge.

Place the cartridge in the plastic test tube shipping container.

Place all the samples for each day (6) in a zip-lock bag and place on dry ice in a cooler or in a freezer. While driving the route the collected samples need to be kept on dry ice.

Collect the collocated (duplicate) samples from each site on the second or third sampling period per week. These should be started and stopped at the same times as the regular samples.

Collect a trip blank (TB) for each method, once per week, while at one of the field sites. It doesn't matter which site (or which day) but note it in the comment section of the log sheet. The TB is collected by breaking the ends off of a tube, capping and labeling as usual and storing along with the rest of the samples. Log the TB into the log sheet.

Attachment IX

Canister Field Log Sheet and
Canister Field Data Sheet

Attachment X

Adsorbent Tube Sampling Field Log Sheet

APPENDIX C

Laboratory Results Report

Air Resources Board

Robert F. Sawyer, Ph.D., Chair
1001 I Street • P.O. Box 2815
Sacramento, California 95812 • www.arb.ca.gov

Linda S. Adams
Secretary for
Environmental Protection

Arnold Schwarzenegger
Governor

TO: Mac McDougall, Manager
Special Purpose Monitoring Section
Air Quality Surveillance Branch

FROM: Russell Grace, Manager//s//
Special Analysis Section
Northern Laboratory Branch

DATE: December 1, 2006

SUBJECT: 2006 BROMOMETHANE AND 1,3-DICHLOROPROPENE AMBIENT AIR MONITORING LABORATORY REPORT

The Special Analysis Section (SAS) provided laboratory support for the bromomethane (methyl bromide) and 1,3-dichloropropene (Telone) ambient air monitoring program conducted in Ventura County, June through August of 2006. The SAS laboratory received 273 samples collected over an eight-week period. The samples were collected in six-liter Silco™ canisters.

The data are presented in the attached report, titled "Bromomethane and 1,3-Dichloropropene Method Development and Analytical Results for Ventura County Ambient Air Monitoring Samples Collected in Six-liter Silco™ Canisters." If you have any questions or comments, please contact Mr. Mike Orbanosky of my staff at 322-2367, or Ms. Karen Fletcher at 322-2430 or me at 322-2496.

Attachment
cc: Michael Poore
Karen Fletcher
Michael Orbanosky
Jack Romans
Lynn Baker, SSD

California Environmental Protection Agency

Air Resources Board

Bromomethane and 1,3-Dichloropropene Method Development and Analytical Results for Ventura County Ambient Air Monitoring Samples Collected in Six-liter Silco™ Canisters

Date: October, 2006

Prepared by

Karen Fletcher, Air Pollution Specialist
Michael Orbanosky, Air Pollution Specialist
Special Analysis Section, Northern Laboratory Branch
Monitoring and Laboratory Division

Reviewed and Approved by

Russell Grace, Manager
Special Analysis Section

Table of Contents

1.0 INTRODUCTION

The Department of Pesticide Regulation (DPR) requested the Air Resources Board (ARB) to conduct ambient air monitoring for bromomethane (methyl bromide) and 1,3-dichloropropene (Telone) using six-liter Silco™ canisters for sample collection. 1,3-dichloropropene is a mixture of two isomers, cis- and trans-1,3-dichloropropene. Both isomers are quantified separately in this report. ARB staff analyzed ambient air samples collected during an eight-week period at six Ventura County monitoring sites. This report covers the analytical and quality assurance results for this ambient air-monitoring program. The standard operating procedure (SOP) for the analysis of bromomethane and 1,3-dichloropropene is attached as Appendix 1. DPR requested an estimated quantitation limit (EQL) for bromomethane and 1,3-dichloropropene of 0.1 and 0.5 $\mu g/m^3$, respectively.

2.0 METHOD DEVELOPMENT AND STANDARD OPERATING PROCEDURE

2.1 Overview

The method follows U. S. Environmental Protection Agency (USEPA) Compendium Method TO-15. Each field sample is pressurized to approximately 5 pounds per square inch gauge (psig) before sample analysis. The canister samples are concentrated using a cryogenic autosampler/concentrator (cryosampler) and then loaded onto the capillary column. The cryosampler contains a Nafion dryer, which reduces water vapor in the sample stream. A gas chromatograph equipped with a high-resolution capillary column separates the sample components. A quadrapole mass spectrometer operated in selected ion monitoring (SIM) mode detects the sample components. The results of the analysis are calculated using an internal standard method.

2.2 Instrument Reproducibility

In order to establish the reproducibility of this method, staff analyzed a spiked standard mixture of bromomethane and 1,3-dichloropropene at three different levels. Staff analyzed each standard level five times. Table 1 shows the instrument reproducibility results for bromomethane and 1,3-dichloropropene.

2.3 Calibration

The gas chromatograph is calibrated using an internal standard method. A calibration curve is constructed by linear regression analysis of calibrator results. The high point of the calibration is determined by sampling 400 ml of a canister containing the high point concentration. Subsequent calibration points are determined by injecting smaller amounts from the standard canister. The subsequent calibration points' volumes are 200, 100, 50, 25 and 15 ml. Calibration curves used for the current study had an r^2 value (variance) equal to or greater than 0.995. The instrument is calibrated before each new batch of samples, and if any of the following occur: calibration check is not within 20% of its target value, the Laboratory Control Sample (LCS) is not within control limits, the instrument needs retuning, or the instrument requires maintenance.

2.4 Minimum Detection Limit (MDL)

This method follows standard USEPA procedures to calculate the MDL. Using the analysis of seven low-level matrix spikes the MDL, Limit of Detection (LOD) and EQL for a 400-ml sample are calculated as follows:

s = the standard deviation of the concentration calculated for the seven replicate spikes.

For bromomethane: s = 1.78 ng/m^3
MDL = (3.14)*(s) = (3.14) *(1.78) = 5.58 ng/m^3
EQL = (5)*(MDL) = (5) *(5.58) = 27.90 ng/m^3
Assume 1:1.79 dilution for pressurization of sample;
LOD = 5.58 ng/m^3 * 1.79= 9.99 ng/m^3
EQL=27.90 ng/m^3 * 1.79= 49.94 ng/m^3

For cis-1,3-dichloropropene: s = 9.80 ng/m^3
MDL = (3.14)*(s) = (3.14) *(9.80) = 30.76 ng/m^3
EQL = (5)*(MDL) = (5) *(30.76) = 153.80 ng/m^3
Assume 1:1.79 dilution for pressurization of sample;
LOD = 30.76 ng/m^3 * 1.79= 55.07 ng/m^3
EQL=153.80 ng/m^3 * 1.79 = 275.34 ng/m^3

For trans-1,3-dichloropropene: s = 7.29 ng/m^3
MDL = (3.14)*(s) = (3.14) *(7.29) = 22.90 ng/m^3
EQL = (5)*(MDL) = (5) *(22.90) = 114.50 ng/m^3
Assume 1:1.79 dilution for pressurization of sample;
LOD = 22.90 ng/m^3 * 1.79= 40.99 ng/m^3
EQL=114.50 ng/m^3 * 1.79 = 205.00 ng/m^3

The dilution factor reflects the expected dilution of the field sample when the canister is pressurized to approximately five (5) psig just prior to analysis. This dilution factor (1.79) is used to adjust the EQL value and must be factored in for actual quantification of samples.

For results above the EQL the lab reports these values to two (2) significant figures. Results below the EQL but greater than or equal to the LOD are reported to one (1) significant figure. If a result is less than LOD it is reported as less than the calculated LOD for that sample. The less than LOD value is reported to one (1) significant figure.

The requested EQL's for bromomethane and 1,3-dichloropropene were 0.10 and 0.50 µg/m^3, respectively. Based on a 400-ml sample size the EQL's achieved were 0.050 µg/m^3 for bromomethane, 0.28 µg/m^3 for cis-1,3-dichloropropene and 0.21 µg/m^3 for

trans-1,3-dichloropropene. The maximum sample size was set at 400 ml based on the increased probability of matrix interference from high levels of sample moisture and matrix.

2.5 Collection Efficiency (Recovery)

Collection efficiency was established for the 2001 bromomethane and telone study (see December 2001 report, Project # P-01-004).

2.6 Storage Stability

Storage stability was established for the 2006 bromomethane and telone study. Staff spiked three (3) canisters with a gas standard similar in concentration to the calibration standard. Each canister was sampled at 200 ml. The canisters were held under laboratory conditions until analysis. Analysis of the spiked canisters occurred at day 0, 1, 12, 22, 36, 43, 54 and 72. See Table 2 for storage stability results.

2.7 Canister Cleaning

Canisters are cleaned in batches of eight (8). Staff chooses one of the cleaned canisters for GCMS analysis. Normally, staff analyzes the canister with the highest level of target compound. If results for the target compounds are not below method LOD the entire cleaning batch is re-cleaned and rechecked. Appendix 2 contains the standard operating procedure for canister cleaning.

3.0 AMBIENT AIR MONITORING SAMPLE RESULTS

The laboratory received 273 ambient air samples from Ventura County, including eight (8) each of trip blanks, trip spikes, and field spikes. Eight (8) lab spikes were prepared and held in the laboratory. Table 3 contains the results for the analysis of the bromomethane and 1,3-dichloropropene (Telone) in ambient air samples.

All field samples were initially analyzed using 400ml of sample. Those samples that had results greater than the highest calibration level were reanalyzed. In most cases the samples were reanalyzed using a smaller sample volume. In one case, field sample 18-CF-1074, the field sample was diluted by pressurizing the sample canister to approximately 30 psig and then taking a fifteen (15) ml sample volume. Results were multiplied by the pressurizing dilution (approximately 1.79) and the sample volume ratio (400 ml/volume injected) to calculate the actual concentration.

4.0 ANALYTICAL QUALITY CONTROL

4.1 Laboratory System Blanks

The laboratory system blank checks the analytical system for contamination. A laboratory system blank, which is 400 ml of ultra pure nitrogen, is run before the start of an analytical batch, and before and after a continuing calibration standard. Staff defines

an analytical batch as the samples in an automated GC/MS analytical sequence.

Some of the system blanks run during the Ventura County study had bromomethane levels above the LOD and less than the EQL. In all cases these were the system blanks prior to the ending CCV and had followed a sample with high bromomethane levels. No field samples were impacted. None of these batches were repeated. All other system blank results were less than the limit of detection (<LOD).

4.2 Method Calibration

The analytical method uses a certified gas standard for calibration. Before analysis, the detector is autotuned and the results are evaluated using the criteria listed in Appendix 3. The certified standard used for the current project was obtained from Scott Specialty Gases and has the following specifications: bromomethane 11.0 ppbv, cis-1, 3-dichloropropene 6.0 ppbv, trans-1, 3-dichloropropene 6.0 ppbv, analytical accuracy +/- 20%, Cylinder #AAL071411. Staff prepares working calibration gas by diluting the certified stock standard to produce the calibration curve detailed in Appendix 4.

4.3 Laboratory Duplicate Samples

Staff analyzed approximately 10% of the ambient air samples as duplicates. Results of these duplicate analyses appear in Table 4.

4.4 Laboratory Control Samples

Analysis of a laboratory control sample (LCS) occurs with each analytical batch. The stock standard for LCS preparation should not be the same stock standard used to calibrate the instrument. The certified standard used for the current project was obtained from Scott Specialty Gases and has the following specifications: bromomethane 11.0 ppbv, cis-1,3-dichloropropene 5.0 ppbv, and trans-1,3-dichloropropene 5.0 ppbv +/- 20%, cylinder AAL071035. The LCS is prepared by spiking the stock standard into a six-liter canister and diluting to a specific concentration with ultrapure nitrogen. A 400-ml LCS sample is analyzed with each analytical batch.

Acceptance ranges used during the current program are: bromomethane, range 73 to 109%; cis-1, 3-dichloropropene, range 84 to 137%; trans-1, 3-dichloropropene, range 77 to 130%. All LCS results were within the acceptance criteria. Results of the LCS analyses are tabulated in Table 5.

4.5 Continuing Calibration Verification Standard

Staff includes a continuing calibration verification standard (CCV) at the beginning of each analytical batch, after every tenth sample in an analytical sequence and at the end of each analytical batch. The CCV must be within $\pm$ 20% of the expected value. If the CCV is outside of limits, staff takes appropriate corrective action, and then reanalyzes the CCV and the affected samples. Calibration of the entire system occurs if the reanalysis of the CCV is outside of acceptance limits. A summary of the average

percent recovery for the CCV's is reported in Table 6.

5.0 AMBIENT AIR FIELD, TRIP, LABORATORY SPIKES AND TRIP BLANKS

Eight (8) each of laboratory spikes, trip spikes, field spikes and trip blanks were analyzed during the 2006 Ventura County ambient air study. A set of canisters was spiked every week for the duration of the monitoring study. Two levels of spiking were performed, a low level (5.6 ug/m^3) and a high level (50 ug/m^3). The low and high levels were sent to the field on alternating weeks. The staff held the lab spikes in the laboratory and analyzed them with the field samples. The stock standard used for spikes was the same standard used to prepare calibration standards.

5.1 Laboratory spikes

Eight (8) canisters were spiked and stored at ambient temperature in the laboratory. Table 7 presents the laboratory spike results. The average spike recovery was: bromomethane 108%, cis-1,3-dichloropropene 102% and trans-1,3-dichloropropene 101%. The laboratory spike run on 7/13/06 had recoveries much higher than expected and the laboratory spike run on 8/17/06 had recoveries for Telone much lower then expected. Table 7 presents the laboratory spike results.

5.2 Trip spikes

Eight (8) canisters were spiked and taken into the field along with the field sample canisters. The trip spike accompanies field staff to the field and is returned to the laboratory. Trip spikes do not undergo field sampling. Table 7 presents the trip spike results. The trip spike run on 7/13/06 and 7/25/06 had recoveries much higher than expected. Trip spikes run on 7/18/06 and 8/17/06 had recoveries for Telone much lower than expected.

5.3 Field spikes

Eight (8) canisters were spiked and taken into the field along with the field sample canisters. Sampling of the field spikes occurred at a co-located monitoring site. Introduction of ambient air into the spiked canisters follows the ambient air sampling protocol. Field spike results were not corrected for background levels. The field spike results are reported in Table 7. The field spike run on 7/13/06 had levels that were much higher than expected.

5.4 Trip blanks

The lab received eight (8) trip blank canisters. A trip blank is an evacuated six-liter canister. Trip blank canisters accompany field staff through the sampling process. The trip blanks are pressurized to approximately five (5) psig with ultra pure nitrogen and analyzed. Table 8 presents the trip blank results. The trip blank received on 6/19/06 and 6/26/06 had positive results for both bromomethane.

6.0 DISCUSSION

The laboratory received 249 field samples and 24 field quality control samples. Eight (8) each of trip blanks, field spikes and trip spikes were received by the laboratory. Eight (8) additional laboratory spikes were prepared and held at the laboratory. Results for bromomethane ranged from 0.11 µg/m^3 to 23 µg/m^3. All results for bromomethane were above the EQL of 0.05 µg/m^3. Results for the cis-1,3-dichloropropene ranged from less than LOD to 24 µg/m^3. Eighty-six (86) results were less than the LOD, while thirty-eight (38) results were between the LOD and EQL. One hundred (100) samples had results greater than the EQL. Results for trans 1,3-dichloropropene ranged from less than LOD to 20.0 µg/m^3. Seventy-eight (78) results were less than LOD, while thirty (30) results fell between the LOD and EQL. One hundred sixteen (116) samples had results greater than the EQL.

Only one sample (18-CF-1074) required a dilution greater than 26.7 fold. The final dilution for this sample was 114 fold. This dilution was achieved by repressurizing the sample canister to approximately thirty (30) psig and then analyzing a fifteen (15) ml sample volume.

Of the 249 field samples received, twenty-five (25) where invalidated due to final sampling pressures failing to be within -10 to -5 inches of mercury after sample collection. These samples were not analyzed. The log number 144 and 236 were not used during this study. No other anomalous results were observed for the field samples.

Eight (8) trip blanks were prepared and sent to the field, one per week of sampling. Two (2) trip blanks, 2-TB-1134 and 8-TB-1158 had levels of bromomethane greater than the LOD of 0.010 µg/m^3. In the first case it is believed that the valve leaked during the trip from the lab to the field and back. The pressure prior to sending to the field was -29.6 inches of mercury and upon return the pressure was -27.2 inches of mercury. The level of bromomethane detected was 0.33 µg/m^3. The dichloropropene isomers were both less than the LOD. The next trip blank (8-TB-1158) had a low level response for bromomethane. The LOD is 0.010 µg/m^3 and the level in the trip blank was 0.023 ug/m^3. The low level of bromomethane is probably due to insufficient cleaning of the canister used for the trip blank. Since only one out of each eight canisters cleaned is checked it is most likely this canister still contained some very low level of bromomethane. No other trip blank had levels greater than the LOD.

DPR requested trip and field spikes be prepared at two different concentrations, a high and a low concentration. The levels used were based on both last year's study levels and the concentration of the stock standard used during this study. Four (4) each of field, trip and laboratory spikes were prepared at the two levels. The two spike levels used were approximately 5 and 50 µg/m^3. Analysis of the low level spikes was straightforward and only required using a sample volume of 15 to 50 ml. The high level spikes required a secondary dilution since the level is above our highest calibration level even at the 15 ml volume. After the secondary dilution is made a sample of 15 to 50 ml is analyzed. All eight (8) laboratory, field and trip spikes were analyzed during

this study.

For the eight (8) laboratory spikes (LS) analyzed, average recovery for bromomethane was 108%, for cis-1,3-dichlorpropene was 102%, and for trans-1,3-dichloropropene was 101%. During the study two (2) anomalous results occurred. The LS analyzed on 7/13/06, 06MTLS04, had results approximating two (2) times higher than expected. After a review of our spiking procedure and calculations, staff concluded that a possible cause for the high recoveries was not allowing the syringe to come to ambient pressure prior to injecting into the canister. A compressed gas sample will have a higher concentration of analytes per volume than a noncompressed gas. Since both the trip spike (TS) and field spike (FS) prepared on 7/13/06 had recoveries approximately two (2) times the expected concentration, it is possible that a systematic problem occurred during this spiking round.

The LS run on 8/17/06, 06MTLS08, had very low recoveries for both the cis- and trans-1,3-dichloropropene. These were 39 and 28% respectively. The recovery for bromomethane was 102%. Since the storage stability study indicated that both bromomethane and 1,3-dichloropropene are stable for up to sixty-five (65) days, something in this particular canister had degraded the dichloropropene. An attempt was made to duplicate these low recoveries by evacuating the canister affected, but not submitting it to the cleaning process. This canister was then respiked and analyzed. After several analyses over the course of several weeks there has been no loss of 1,3-dichloropropene. The daily QC sample, CCV and LCS, run concurrently with the above LS had recoveries within acceptable limits.

For the eight (8) trip spikes (TS) analyzed, average recovery for bromomethane was 112%, for cis-1,3-dichloropropene was 88%, and for trans-1,3-dichloropropene was 91%. The trip spikes analyzed on 7/13/06 and 7/25/06, 06MT134TS and 06MT201TS, had results for both bromomethane and 1,3-dichloropropene that were 50 to 70% higher than expected. As above with the LS the procedures and calculations were double check and found to be correct. The TS were reanalyzed with similar results. Since both of the TS are the low level concentration, it is possible that the syringe did not come to ambient pressures prior to injection into the canisters. Compressing the gas in the syringe would yield a higher concentration in the canister.

The TS analyzed on 7/18/06 and 8/17/06, 06MT136TS and 06MT275TS, had low or no recoveries for 1,3-dichloropropene, while the bromomethane recoveries were near 100%. Trip spike 06MT275TS was analyzed twice. The second analysis was performed using a higher sample volume in an attempt to detect the 1,3-dichloropropene. Both runs are reported in Table 7. As above with the LS it is suspected that something in these specific canisters degraded the 1,3-dichloropropene. Since the cans are not open to the atmosphere, the contaminant must have been introduced during the cleaning cycle. The only component used during cleaning is distilled water. This is used to moisten the can prior to evacuation, and to provide a scrubbing effect for removal of water soluble contaminants. Normally the water which should be vapor is removed during the last evacuation of the canister, but possibly in

these few cases the canister had water as a liquid still remaining in the canister after the last evacuation. This water then reacted with the 1,3-dichloropropene resulting in lower than expected recoveries. The canisters used for spiking are selected randomly from approximately seventeen canisters. Only canister 1057 was used twice during this study for a trip spike. The first time it was used, normal recoveries resulted. The second time the 1,3-dichloropropene recoveries were low. The daily QC samples, CCV and LCS, analyzed concurrently with these TS had recoveries within acceptable limits.

Of the eight (8) field spikes (FS) analyzed during this study, one sample, 06MT110FS, had recoveries approximately 2 times higher than expected. The possible explanation is as above. All other FS recoveries were acceptable.

FS sample recoveries were not corrected for background levels. Backgrounds can be estimated by using the collocated unspiked sample run concurrently with the FS. These samples are identified by a log number that is one less than the field spike log number. In case of the high spike level (50 µg/m^3), the background would have minimal impact on the spiked sample recovery because of the large dilution performed prior to analysis. For the low level field spike (5.6 µg/m^3), the background levels may have an impact on the actual percent recovery. The dilution factor for the low levels ranges from 8 to 26.7.

No other anomalous events occurred during this study

Table 1: Instrument Reproducibility
MSD-5

Low level	Bromomethane nanograms/ cubic meter(ng/m^3)	Cis-1,3-Dichloropropene (ng/m^3)	Trans-1,3-Dichloropropene (ng/m^3)
1	24.66	14.69	14.14
2	23.99	15.32	14.63
3	25.33	14.36	13.73
4	25.30	14.08	13.24
5	25.86	14.73	14.74
Average	**25.03**	**14.64**	**14.10**
SD (standard deviation)	**0.72**	**0.47**	**0.63**
RSD (relative standard deviation)	**2.87**	**3.18**	**4.44**
Medium Level			
1	177.09	94.01	94.16
2	176.67	92.52	92.84
3	175.25	90.70	91.70
4	175.98	91.19	91.55
5	177.10	89.91	90.59
Average	**176.42**	**91.67**	**92.17**
SD	**0.80**	**1.62**	**1.37**
RSD	**0.45**	**1.76**	**1.49**
High Level			
1	734.87	381.26	399.77
2	735.48	378.14	397.62
3	734.39	379.70	392.16
4	729.69	372.43	383.63
5	736.71	375.76	388.84
Average	**734.23**	**377.46**	**392.40**
SD	**2.68**	**3.47**	**6.54**
RSD	**0.37**	**0.92**	**1.67**

TABLE 2: Canister Stability

Time (days)	Canister Number	Bromomethane		Cis-1,3-dichloropropene		Trans-1,3-dichloropropene	
		Area analyte/Area Internal Std	Recovery (%)	Area analyte/Area Internal Std	Recovery (%)	Area analyte/Area Internal Std	Recovery (%)
0	DPR1075	0.797	105	0.346	94	0.326	95
	DPR1150	0.785	108	0.331	94	0.303	91
	DPR1147	0.791	106	0.324	89	0.301	88
1	DPR1075	0.813	108	0.309	84	0.288	83
	DPR1150	0.793	109	0.298	84	0.278	84
	DPR1147	0.797	106	0.313	86	0.293	86
12	DPR1075	0.808	103	0.295	97	0.280	99
	DPR1150	0.793	105	0.282	96	0.265	97
	DPR1147	0.799	103	0.278	93	0.258	92
22	DPR1075	0.396	108	0.162	99	0.159	123
	DPR1150	0.377	107	0.151	97	0.145	117
	DPR1147	0.386	106	0.154	96	0.148	116
36	DPR1075	0.476	98	0.159	96	0.157	93
	DPR1150	0.398	100	0.156	98	0.153	94
	DPR1147	0.399	98	0.164	100	0.158	95
43	DPR1075	0.411	112	0.164	114	0.160	112
	DPR1150	0.395	114	0.168	121	0.166	120
	DPR1147	0.401	113	0.163	114	0.159	112
54	DPR1075	0.408	108	0.180	108	0.181	112
	DPR1150	0.397	109	0.169	105	0.169	108
	DPR1147	0.409	109	0.177	107	0.172	107
72	DPR1075	0.391	102	0.214	97	0.187	98
	DPR1150	0.396	108	0.216	102	0.190	103
	DPR1147	0.382	101	0.213	98	0.186	98

Table 3: Ventura County Ambient Monitoring Results

Site	Log Number	Sample Identification	Date Received	Date Analyzed	Methyl Bromide		Cis-Telone		Trans-Telone	
					Results (µg/m3)	Dilution	Results (µg/m3)	Dilution	Results (µg/m3)	Dilution
CF	2	1-CF-1166	6/19/2006		INVALID		INVALID		INVALID	
	8	2-CF-1142	6/19/2006	6/19/2006	1.1E+00	1.74	3.0E-01	1.74	4.0E-01	1.74
	9	2-CF-C-1082	6/19/2006	6/19/2006	1.1E+00	1.70	3.0E-01	1.70	4.2E-01	1.70
	20	3-CF-1171	6/19/2006	6/21/2006	2.1E+00	7.14	2.8E+00	7.14	2.9E+00	7.14
	27	4-CF-1138	6/19/2006	6/20/2006	7.1E-01	1.78	6.5E-01	1.78	8.0E-01	1.78
	35	5-CF-1182	6/26/2006	6/27/2006	1.6E+00	3.39	2.8E-01	1.69	2.8E-01	1.69
	36	5-CF-C-1165	6/26/2006	6/27/2006	1.6E+00	3.42	2.8E-01	1.71	3.0E-01	1.71
	46	6-CF-1126	6/26/2006	6/27/2006	1.3E+00	3.26	3.2E-01	1.63	3.3E-01	1.63
	52	7-CF-1084	6/26/2006	6/26/2006	2.0E+00	6.91	**9E-01**	6.91	8.6E-01	6.91
	61	8-CF-1137	6/26/2006	6/27/2006	1.1E+00	1.78	5.4E-01	1.78	5.3E-01	1.78
	70	9-CF-1083	7/3/2006	7/7/2006	1.3E+00	3.56	1.4E+00	3.56	1.1E+00	3.56
	71	9-CF-C-1173	7/3/2006	7/7/2006	1.4E+00	3.52	1.3E+00	3.52	1.1E+00	3.52
	81	10-CF-1179	7/3/2006	7/7/2006	3.0E+00	7.09	1.4E+00	7.09	1.2E+00	7.09
	88	11-CF-1161	7/3/2006	7/7/2006	1.0E+00	1.84	1.9E+00	7.37	1.6E+00	7.37
	95	12-CF-1051	7/3/2006	7/7/2006	5.1E-01	1.79	1.6E+00	3.58	1.4E+00	3.58
	105	13-CF-1140	7/10/2006	7/12/2006	1.7E+00	3.78	1.2E+00	3.78	1.2E+00	3.78
	113	14-CF-1061	7/10/2006	7/12/2006	1.9E+00	7.06	1.2E+00	7.06	1.1E+00	7.06
	114	14-CF-C-1112	7/10/2006	7/12/2006	1.9E+00	7.61	**1E+00**	7.61	1.0E+00	7.61
	123	15-CF-1152	7/10/2006	7/12/2006	1.8E+00	7.08	2.3E+00	7.08	2.1E+00	7.08
	129	16-CF-1106	7/10/2006	7/11/2006	8.5E-01	1.72	1.5E+00	6.86	1.4E+00	6.86
	139	17-CF-1132	7/17/2006	7/18/2006	3.2E-01	1.81	1.8E+00	7.25	1.2E+00	7.25
	140	17-CF-C-1196	7/17/2006	7/18/2006	3.2E-01	1.88	1.8E+00	7.52	1.2E+00	7.52
	151	18-CF-1074	7/17/2006	7/19/2006	7.1E-01	1.80	2.4E+01	114.00	2.0E+01	114.00
	158	19-CF-1126	7/17/2006	7/18/2006	3.2E-01	1.70	1.2E+01	45.46	1.2E+01	45.46
	164	20-CF-1128	7/17/2006	7/18/2006	8.3E-01	1.75	4.4E+00	28.01	5.0E+00	28.01
	171	21-CF-1073	7/24/2006	7/26/2006	1.9E+00	7.22	**3E-01**	1.81	4.2E-01	1.81
	172	21-CF-C-1105	7/24/2006	7/26/2006	2.0E+00	7.32	**3E-01**	1.83	4.2E-01	1.83
	182	22-CF-1180	7/24/2006	7/26/2006	3.5E+00	7.09	**1E-01**	1.77	2.2E-01	1.77
	189	23-CF-1060	7/24/2006	7/26/2006	1.3E+00	3.55	**7E-02**	1.77	**1E-01**	1.77
	195	24-CF-1112	7/24/2006	7/25/2006	4.5E-01	1.77	**2E-01**	1.77	2.5E-01	1.77

Table 3: Ventura County Ambient Monitoring Results

Site	Log Number	Sample Identification	Date Received	Date Analyzed	Methyl Bromide		Cis-Telone		Trans-Telone	
					Results (µg/m3)	Dilution	Results (µg/m3)	Dilution	Results (µg/m3)	Dilution
CF	203	25-CF-1156	7/31/2006	8/1/2006	7.3E+00	14.60	<6E-02	1.82	**7E-02**	1.82
	211	26-CF-1092	7/31/2006	8/2/2006	3.7E+00	7.25	<6E-02	1.81	<4E-02	1.81
	212	26-CF-C-1175	7/31/2006	8/2/2006	3.8E+00	7.22	<6E-02	1.80	<4E-02	1.80
	222	27-CF-1179	7/31/2006	8/2/2006	2.4E+00	6.51	<5E-02	1.63	<4E-02	1.63
	228	28-CF-1164	7/31/2006	8/3/2006	8.2E+00	14.63	<6E-02	1.83	<4E-02	1.83
	239	29-CF-1083	8/7/2006	8/18/2006	3.4E+00	7.19	<6E-02	1.80	<4E-02	1.80
	240	29-CF-C-1087	8/7/2006	8/18/2006	3.4E+00	7.53	<6E-02	1.88	<4E-02	1.88
	251	30-CF-1158	8/7/2006	8/18/2006	3.6E+00	7.31	<6E-02	1.83	<4E-02	1.83
	262	31-CF-1105	8/7/2006	8/18/2006	1.3E+00	3.63	<6E-02	1.81	<4E-02	1.81
	270	32-CF-1055	8/7/2006	8/18/2006	1.6E+00	3.49	<5E-02	1.74	<4E-02	1.74
CT	4	1-CT-1113	6/19/2006	6/19/2006	4.5E-01	1.75	4.6E-01	1.75	5.6E-01	1.75
	15	2-CT-1066	6/19/2006	6/19/2006	5.2E-01	1.81	**9E-02**	1.81	**1E-01**	1.81
	16	2-CT-C-1124	6/19/2006	6/19/2006	5.0E-01	1.81	**8E-02**	1.81	**1E-01**	1.81
	23	3-CT-1067	6/19/2006	6/21/2006	1.9E+00	3.71	1.1E+00	3.71	1.3E+00	3.71
	30	4-CT-1064	6/19/2006		INVALID		INVALID		INVALID	
	41	5-CT-1089	6/26/2006	6/26/2006	3.6E-01	1.96	3.5E-01	1.96	3.6E-01	1.96
	42	5-CT-C-1186	6/26/2006	6/26/2006	3.8E-01	1.83	3.8E-01	1.83	3.9E-01	1.83
	49	6-CT-1061	6/26/2006	6/26/2006	4.8E-01	1.91	5.1E-01	1.91	4.9E-01	1.91
	56	7-CT-1153	6/26/2006	6/27/2006	8.3E-01	1.88	3.4E-01	1.88	3.3E-01	1.88
	57	7-CT-C-1133	6/26/2006		INVALID		INVALID		INVALID	
	64	8-CT-1185	6/26/2006		INVALID		INVALID		INVALID	
	76	9-CT-1135	7/3/2006		INVALID		INVALID		INVALID	
	77	9-CT-C-1113	7/3/2006		INVALID		INVALID		INVALID	
	84	10-CT-1196	7/3/2006		INVALID		INVALID		INVALID	
	91	11-CT-1138	7/3/2006	7/8/2006	6.9E-01	2.05	3.9E+00	16.43	3.3E+00	16.43
	99	12-CT-1110	7/3/2006	7/8/2006	INVALID		INVALID		INVALID	
	108	13-CT-1098	7/10/2006	7/12/2006	8.8E-01	2.01	2.2E+00	8.06	1.9E+00	8.06
	118	14-CT-1059	7/10/2006	7/12/2006	2.1E+00	28.01	5.4E+00	28.01	4.9E+00	28.01

Table 3: Ventura County Ambient Monitoring Results

Site	Log Number	Sample Identification	Date Received	Date Analyzed	Methyl Bromide		Cis-Telone		Trans-Telone	
					Results (µg/m3))	Dilution	Results (µg/m3)	Dilution	Results (µg/m3)	Dilution
CT	119	14-CT-C-1053	7/10/2006	7/12/2006	2.1E+00	29.21	5.1E+00	29.21	4.6E+00	29.21
	146	17-CT-1084	7/17/2006	7/17/2006	1.7E-01	1.69	**2E-01**	1.69	2.4E-01	1.69
	147	17-CT-C-1050	7/17/2006	7/17/2006	1.8E-01	1.94	**2E-01**	1.94	2.3E-01	1.94
	154	18-CT-1162	7/17/2006	7/17/2006	2.3E-01	1.74	3.3E-01	1.74	4.2E-01	1.74
	161	19-CT-1125	7/17/2006	7/19/2006	4.1E-01	1.73	6.6E-01	1.73	8.5E-01	3.47
	167	20-CT-1181	7/17/2006	7/18/2006	2.9E-01	1.66	**2E-01**	1.66	2.7E-01	1.66
	177	21-CT-1149	7/24/2006	7/24/2006	3.8E-01	1.83	**7E-02**	1.83	**2E-01**	1.83
	178	21-CT-C-1152	7/24/2006	7/24/2006	3.7E-01	1.74	**8E-02**	1.74	**2E-01**	1.74
	185	22-CT-1142	7/24/2006	7/25/2006	3.7E-01	1.70	<5E-02	1.70	<4E-02	1.70
	192	23-CT-1169	7/24/2006	7/25/2006	1.8E+00	6.79	<5E-02	1.70	<4E-02	1.70
	198	24-CT-1153	7/24/2006	7/26/2006	3.9E+00	7.22	<6E-02	1.81	<4E-02	1.81
	206	25-CT-1182	7/31/2006	8/2/2006	5.2E+00	13.00	<5E-02	1.63	<4E-02	1.63
	217	26-CT-1064	7/31/2006	8/2/2006	3.0E+00	6.96	<5E-02	1.74	<4E-02	1.74
	218	26-CT-C-1184	7/31/2006	8/2/2006	3.1E+00	7.29	<6E-02	1.82	<4E-02	1.82
	225	27-CT-1160	7/31/2006	8/2/2006	4.8E+00	13.27	5.1E-01	1.66	5.7E-01	1.66
	232	28-CT-1056	7/31/2006	8/3/2006	7.2E+00	14.92	<6E-02	1.86	**7E-02**	1.86
	245	29-CT-1101	8/7/2006	8/18/2006	2.3E+00	3.65	<6E-02	1.83	<4E-02	1.83
	246	29-CT-C-1097	8/7/2006	8/18/2006	2.3E+00	3.62	<6E-02	1.81	<4E-02	1.81
	256	30-CT-1057	8/7/2006	8/18/2006	1.8E+00	3.58	<6E-02	1.79	<4E-02	1.79
	257	30-CT-C-1089	8/7/2006	8/18/2006	1.8E+00	3.61	<6E-02	1.81	<4E-02	1.81
LV	13	2-LV-1178	6/19/2006	6/21/2006	2.3E+00	3.50	3.6E-01	1.75	5.5E-01	1.75
	14	2-LV-C-1051	6/19/2006		INVALID		INVALID		INVALID	
	22	3-LV-1144	6/19/2006	6/21/2006	1.3E+00	6.98	1.3E+00	6.98	1.5E+00	6.98
	29	4-LV-1122	6/19/2006	6/20/2006	3.2E-01	1.74	2.1E-01	1.74	2.8E-01	1.74
	39	5-LV-1097	6/26/2006	6/27/2006	4.3E-01	1.69	8.2E-01	3.38	7.9E-01	3.38
	40	5-LV-C-1180	6/26/2006		INVALID		INVALID		INVALID	
	48	6-LV-1111	6/26/2006	6/27/2006	6.3E-01	1.73	1.7E+00	6.92	1.5E+00	6.92
	54	7-LV-1099	6/26/2006	6/26/2006	7.0E-01	1.68	3.7E-01	1.68	3.7E-01	1.68
	55	7-LV-C-1058	6/26/2006	6/27/2006	7.1E-01	1.65	3.8E-01	1.65	3.9E-01	1.65

Table 3: Ventura County Ambient Monitoring Results

Site	Log Number	Sample Identification	Date Received	Date Analyzed	Methyl Bromide		Cis-Telone		Trans-Telone	
					Results (µg/m3)	Dilution	Results (µg/m3)	Dilution	Results (µg/m3)	Dilution
LV	63	8-LV-1128	6/26/2006	6/28/2006	2.8E-01	1.78	8.7E-01	3.56	8.6E-01	3.56
	74	9-LV-1139	7/3/2006	7/7/2006	9.0E-01	1.73	1.9E+00	6.92	1.8E+00	6.92
	75	9-LV-C-1090	7/3/2006	7/7/2006	8.9E-01	1.62	2.0E+00	6.49	1.9E+00	6.49
	83	10-LV-1175	7/3/2006	7/7/2006	5.7E-01	1.77	1.6E+00	7.07	1.5E+00	7.07
	90	11-LV-1052	7/3/2006	7/7/2006	9.9E+00	27.18	**2E+00**	27.18	**2E+00**	27.18
	98	12-LV-1142	7/3/2006	7/8/2006	2.3E+00	7.16	1.9E+00	7.16	1.7E+00	7.16
	107	13-LV-1122	7/10/2006	7/12/2006	6.6E+00	15.32	**8E-01**	15.32	**8E-01**	15.32
	117	14-LV-1105	7/10/2006	7/12/2006	6.4E+00	14.93	2.4E+00	14.93	2.2E+00	14.93
	125	15-LV-1055	7/10/2006	7/12/2006	1.5E+00	7.46	2.2E+00	7.46	2.0E+00	7.46
	127	14-LV-C-1163	7/10/2006	7/12/2006	6.5E+00	15.38	**2E+00**	15.38	2.2E+00	15.38
	131	16-LV-1091	7/10/2006	7/11/2006	1.0E+00	1.90	5.9E-01	1.90	5.7E-01	1.90
	143	17-LV-1129	7/17/2006	7/17/2006	2.7E-01	1.85	**9E-02**	1.85	**1E-01**	1.85
	145	17-LV-C-1102	7/17/2006		INVALID		INVALID		INVALID	
	153	18-LV-1097	7/17/2006	7/18/2006	6.3E-01	1.84	1.6E+00	7.35	1.7E+00	7.35
	160	19-LV-1093	7/17/2006	7/18/2006	7.2E-01	1.80	6.8E-01	1.80	7.5E-01	1.80
	166	20-LV-1082	7/17/2006	7/18/2006	5.0E-01	1.92	**3E-01**	1.92	3.8E-01	1.92
	175	21-LV-1122	7/24/2006	7/24/2006	3.8E-01	1.83	<6E-02	1.83	<4E-02	1.83
	176	21-LV-C-1051	7/24/2006		INVALID		INVALID		INVALID	
	184	22-LV-1086	7/24/2006	7/24/2006	3.0E-01	1.70	<5E-02	1.70	<4E-02	1.70
	191	23-LV-1085	7/24/2006	7/26/2006	2.2E+00	6.64	<5E-02	1.66	<4E-02	1.66
	197	24-LV-1098	7/24/2006	7/26/2006	7.8E+00	13.87	<5E-02	1.73	<4E-02	1.73
	205	25-LV-1161	7/31/2006	8/2/2006	3.1E+00	6.94	<5E-02	1.73	<4E-02	1.73
	215	26-LV-1139	7/31/2006		INVALID		INVALID		INVALID	
	216	26-LV-C-1065	7/31/2006	7/31/2006	8.1E-01	1.80	<6E-02	1.80	<4E-02	1.80
	224	27-LV-1063	7/31/2006	8/2/2006	2.4E+00	7.56	<6E-02	1.89	<4E-02	1.89
	230	28-LV-1178	7/31/2006	8/3/2006	5.0E+00	14.92	<6E-02	1.86	<4E-02	1.86
	231	28-LV-C-1171	7/31/2006	8/3/2006	5.2E+00	15.33	<6E-02	1.92	<4E-02	1.92
	243	29-LV-1137	8/7/2006	8/18/2006	2.3E+01	50.41	<6E-02	1.89	<4E-02	1.89
	244	29-LV-C-1066	8/7/2006		INVALID		INVALID		INVALID	
	254	30-LV-1126	8/7/2006	8/15/2006	8.2E-01	1.85	<6E-02	1.85	<4E-02	1.85

Table 3: Ventura County Ambient Monitoring Results

Site	Log Number	Sample Identification	Date Received	Date Analyzed	Methyl Bromide		Cis-Telone		Trans-Telone	
					Results (µg/m3)	Dilution	Results (µg/m3)	Dilution	Results (µg/m3))	Dilution
LV	255	30-LV-C-1076	8/7/2006	8/15/2006	8.3E-01	1.76	<5E-02	1.76	<4E-02	1.76
	265	31-LV-1181	8/7/2006	8/17/2006	1.5E+01	30.69	<6E-02	1.92	<4E-02	1.92
	266	31-LV-C-1093	8/7/2006	8/17/2006	1.6E+01	28.95	<6E-02	1.81	<4E-02	1.81
	272	32-LV-1168	8/7/2006	8/17/2006	6.9E+00	15.65	<6E-02	1.96	<5E-02	1.96
	273	32-LV-C-1111	8/7/2006	8/18/2006	7.2E+00	15.16	<6E-02	1.89	<4E-02	1.89
TO	5	1-TO-1053	6/19/2006		INVALID		INVALID		INVALID	
	17	2-TO-1196	6/19/2006	6/19/2006	2.4E-01	1.77	<5.E-02	1.77	<4.E-02	1.77
	18	2-TO-C-1104	6/19/2006	6/19/2006	2.4E-01	1.72	<5.E-02	1.72	<4.E-02	1.72
	24	3-TO-1103	6/19/2006	6/20/2006	3.7E-01	1.78	**2E-01**	1.78	2.0E-01	1.78
	32	4-TO-1055	6/19/2006	6/20/2006	2.9E-01	1.83	**2E-01**	1.83	**2E-01**	1.83
	43	5-TO-1091	6/26/2006		INVALID		INVALID		INVALID	
	44	5-TO-C-1172	6/26/2006	6/26/2006	3.6E-01	1.79	**2E-01**	1.79	2.2E-01	1.79
	50	6-TO-1086	6/26/2006	6/26/2006	4.5E-01	1.69	2.8E-01	1.69	2.4E-01	1.69
	58	7-TO-1056	6/26/2006	6/27/2006	8.9E-01	1.70	4.6E-01	1.70	4.3E-01	1.70
	65	8-TO-1102	6/26/2006	6/27/2006	1.0E+00	1.59	**2E-01**	1.59	**1E-01**	1.59
	78	9-TO-1170	7/3/2006		INVALID		INVALID		INVALID	
	79	9-TO-C-1073	7/3/2006	7/7/2006	1.3E+00	3.50	1.1E+00	3.50	9.2E-01	3.50
	85	10-TO-1074	7/3/2006		INVALID		INVALID		INVALID	
	92	11-TO-1125	7/3/2006	7/7/2006	2.3E-01	1.80	5.6E-01	1.80	4.7E-01	1.80
	93	11-TO-C-1093	7/3/2006	7/7/2006	2.3E-01	1.69	5.3E-01	1.69	4.5E-01	1.69
	100	12-TO-1141	7/3/2006	7/7/2006	2.9E-01	1.83	5.4E-01	1.83	4.5E-01	1.83
	101	12-TO-C-1088	7/3/2006	7/7/2006	3.0E-01	1.85	5.5E-01	1.85	4.7E-01	1.85
	109	13-TO-1124	7/10/2006	7/12/2006	6.6E-01	1.90	9.8E-01	3.80	7.7E-01	3.80
	120	14-TO-1104	7/10/2006	7/11/2006	8.9E-01	1.71	3.1E-01	1.71	2.4E-01	1.71
	121	14-TO-C-1054	7/10/2006	7/11/2006	9.2E-01	1.81	3.3E-01	1.81	2.5E-01	1.81
	126	15-TO-1064	7/10/2006	7/11/2006	3.8E-01	1.85	**2E-01**	1.85	**2E-01**	1.85
	132	16-TO-1182	7/10/2006	7/11/2006	4.0E-01	1.74	**1E-01**	1.74	**9E-02**	1.74
	148	17-TO-1071	7/17/2006	7/17/2006	1.4E-01	1.93	**2E-01**	1.93	**2E-01**	1.93
	149	17-TO-C-1067	7/17/2006	7/17/2006	1.5E-01	1.78	**2E-01**	1.78	**2E-01**	1.78

Table 3: Ventura County Ambient Monitoring Results

Site	Log Number	Sample Identification	Date Received	Date Analyzed	Methyl Bromide		Cis-Telone		Trans-Telone	
					Results (µg/m3)	Dilution	Results (µg/m3)	Dilution	Results (µg/m3)	Dilution
TO	155	18-TO-1070	7/17/2006	7/17/2006	1.6E-01	1.73	**9E-02**	1.73	**8E-02**	1.73
	162	19-TO-1088	7/17/2006	7/18/2006	1.3E-01	1.71	**5E-02**	1.71	**6E-02**	1.71
	168	20-TO-1072	7/17/2006	7/18/2006	1.4E-01	1.82	<6E-02	1.82	**5E-02**	1.82
	179	21-TO-1185	7/24/2006	7/24/2006	5.1E-01	1.76	<5E-02	1.76	<4E-02	1.76
	180	21-TO-C-1163	7/24/2006	7/24/2006	5.3E-01	1.75	<5E-02	1.75	<4E-02	1.75
	186	22-TO-1061	7/24/2006	7/25/2006	4.2E-01	1.79	<6E-02	1.79	<4E-02	1.79
	193	23-TO-1138	7/24/2006	7/26/2006	1.6E+00	3.47	<5E-02	1.73	<4E-02	1.73
	199	24-TO-1053	7/24/2006	7/26/2006	2.2E+00	7.10	<6E-02	1.77	<4E-02	1.77
	207	25-TO-1050	7/31/2006	8/2/2006	2.3E+00	6.65	<5E-02	1.66	<4E-02	1.66
	219	26-TO-1106	7/31/2006	8/11/2006	1.7E+00	3.61	<6E-02	1.81	<4E-02	1.81
	220	26-TO-C-1124	7/31/2006	8/11/2006	1.9E+00	3.82	<6E-02	1.91	<4E-02	1.91
	226	27-TO-1099	7/31/2006	8/2/2006	1.6E+00	3.42	**2E-01**	1.71	2.3E-01	1.71
	233	28-TO-1058	7/31/2006	8/2/2006	3.6E+00	7.39	<6E-02	1.85	<4E-02	1.85
	247	29-TO-1172	8/7/2006	8/15/2006	1.0E+00	1.94	<6E-02	1.94	<4E-02	1.94
	248	29-TO-C-1088	8/7/2006	8/15/2006	9.9E-01	1.99	<6E-02	1.99	<5E-02	1.99
	259	30-TO-1186	8/7/2006	8/15/2006	4.1E-01	1.91	<6E-02	1.91	<4E-02	1.91
	267	31-TO-1140	8/7/2006	8/16/2006	8.5E-01	1.90	<6E-02	1.90	<4E-02	1.90
	274	32-TO-1165	8/7/2006	8/16/2006	1.1E+00	1.85	<6E-02	1.85	<4E-02	1.85
UD	1	1-UD-1177	6/19/2006		INVALID		INVALID		INVALID	
	6	2-UD-1129	6/19/2006	6/19/2006	2.4E+00	7.29	3.0E-01	1.82	4.0E-01	1.82
	7	2-UD-C-1141	6/19/2006	6/19/2006	2.5E+00	6.44	3.1E-01	1.61	4.0E-01	1.61
	19	3-UD-1169	6/19/2006	6/20/2006	3.0E+00	14.69	5.1E+00	14.69	5.3E+00	14.69
	26	4-UD-1060	6/19/2006	6/22/2006	2.0E+00	3.69	1.8E+00	7.38	1.9E+00	7.38
	33	5-UD-1164	6/26/2006		INVALID		INVALID		INVALID	
	34	5-UD-C-1181	6/26/2006	6/27/2006	2.5E+00	7.25	5.5E-01	1.81	5.6E-01	1.81
	45	6-UD-1167	6/26/2006	6/26/2006	1.0E+00	1.68	2.9E-01	1.68	3.0E-01	1.68
	51	7-UD-1063	6/26/2006	6/26/2006	1.4E+00	1.79	4.1E-01	1.79	4.3E-01	1.79
	60	8-UD-1054	6/26/2006		INVALID		INVALID		INVALID	
	68	9-UD-1162	6/26/2006		INVALID		INVALID		INVALID	

Table 3: Ventura County Ambient Monitoring Results

Site	Log Number	Sample Identification	Date Received	Date Analyzed	Methyl Bromide		Cis-Telone		Trans-Telone	
					Results (µg/m3)	Dilution	Results (µg/m3)	Dilution	Results (µg/m3))	Dilution
UD	69	9-UD-C-1092	7/3/2006	7/7/2006	7.7E-01	1.83	2.3E+00	7.34	1.8E+00	7.34
	80	10-UD-1145	7/3/2006	7/7/2006	2.7E-01	1.78	2.1E+00	7.13	1.9E+00	7.13
	87	11-UD-1187	7/3/2006	7/7/2006	4.0E-01	1.75	1.9E+00	7.01	1.6E+00	7.01
	94	12-UD-1177	7/3/2006	7/11/2006	8.6E-01	1.84	2.0E+00	7.36	1.8E+00	7.36
	104	13-UD-1169	7/10/2006	7/12/2006	3.5E+00	7.67	**1E+00**	7.67	1.1E+00	7.67
	111	14-UD-1136	7/10/2006	7/12/2006	4.2E+00	14.89	**1E+00**	14.89	**1E+00**	14.89
	112	14-UD-C-1086	7/10/2006	7/12/2006	4.1E+00	15.08	**9E-01**	15.08	**9E-01**	15.08
	122	15-UD-1180	7/10/2006	7/12/2006	1.2E+00	13.85	3.3E+00	13.85	2.9E+00	13.85
	128	16-UD-1103	7/10/2006	7/12/2006	1.1E+00	1.83	2.0E+00	7.30	1.8E+00	7.30
	137	17-UD-1170	7/17/2006	7/17/2006	2.9E-01	1.85	7.8E-01	1.85	7.7E-01	1.85
	138	17-UD-C-1158	7/17/2006	7/17/2006	2.9E-01	1.84	8.2E-01	1.84	7.9E-01	1.84
	150	18-UD-1172	7/17/2006	7/19/2006	6.8E-01	1.74	9.5E-01	3.48	8.9E-01	3.48
	157	19-UD-1167	7/17/2006	7/18/2006	2.5E-01	1.82	5.7E-01	1.82	6.4E-01	1.82
	163	20-UD-1186	7/17/2006	7/18/2006	6.6E-01	1.75	3.7E-01	1.75	5.1E-01	1.75
	169	21-UD-1107	7/24/2006	7/24/2006	4.1E-01	1.85	**7E-02**	1.85	**1E-01**	1.85
	170	21-UD-C-1136	7/24/2006	7/24/2006	4.0E-01	1.82	**8E-02**	1.82	**1E-01**	1.82
	181	22-UD-1134	7/24/2006	7/24/2006	7.7E-01	1.73	<5E-02	1.73	**7E-02**	1.73
	188	23-UD-1103	7/24/2006	7/25/2006	3.5E-01	1.74	<5E-02	1.74	<4E-02	1.74
	194	24-UD-1187	7/24/2006	7/25/2006	1.1E-01	1.73	<5E-02	1.73	<4E-02	1.73
	202	25-UD-1095	7/31/2006	8/2/2006	1.7E+00	3.52	<5E-02	1.76	<4E-02	1.76
	209	26-UD-1066	7/31/2006	7/31/2006	5.7E-01	1.80	<6E-02	1.80	<4E-02	1.80
	210	26-UD-C-1062	7/31/2006	7/31/2006	5.9E-01	1.85	<6E-02	1.85	<4E-02	1.85
	221	27-UD-1069	7/31/2006	8/1/2006	7.2E-01	1.79	<6E-02	1.79	<4E-02	1.79
	227	28-UD-1091	7/31/2006	8/2/2006	1.0E+01	28.71	<6E-02	1.79	<4E-02	1.79
	237	29-UD-1170	8/7/2006	8/17/2006	9.2E+00	15.57	<6E-02	1.95	<5E-02	1.95
	238	29-UD-C-1167	8/7/2006	8/17/2006	9.1E+00	14.88	<6E-02	1.86	<4E-02	1.86
	249	30-UD-1067	8/7/2006	8/17/2006	9.8E+00	15.73	<6E-02	1.97	<5E-02	1.97
	250	30-UD-C-1196	8/7/2006	8/17/2006	9.8E+00	15.35	<6E-02	1.92	<4E-02	1.92
	260	31-UD-1153	8/7/2006	8/18/2006	2.3E+00	3.91	<6E-02	1.96	<5E-02	1.96
	261	31-UD-C-1053	8/7/2006	8/18/2006	2.2E+00	3.89	<6E-02	1.95	<5E-02	1.95

Table 3: Ventura County Ambient Monitoring Results

Site	Log Number	Sample Identification	Date Received	Date Analyzed	Methyl Bromide		Cis-Telone		Trans-Telone	
					Results (µg/m3)	Dilution	Results (µg/m3))	Dilution	Results (µg/m3))	Dilution
UD	268	32-UD-1130	8/7/2006	8/18/2006	3.8E+00	7.49	<6E-02	1.87	<4E-02	1.87
	269	32-UD-C-1085	8/7/2006		INVALID		INVALID		INVALID	
VC	3	1-VC-1163	6/19/2006	6/20/2006	4.8E+00	13.11	**1E+00**	13.11	**1E+00**	13.11
	11	2-VC-1050	6/19/2006	6/21/2006	1.6E+00	3.72	4.0E-01	1.86	5.5E-01	1.86
	12	2-VC-C-1071	6/19/2006	6/21/2006	1.7E+00	4.01	4.0E-01	2.00	5.6E-01	2.00
	21	3-VC-1106	6/19/2006	6/21/2006	2.7E+00	7.46	1.4E+00	7.46	1.6E+00	7.46
	28	4-VC-1140	6/19/2006	6/20/2006	4.6E-01	1.91	5.6E-01	1.91	7.2E-01	1.91
	37	5-VC-1070	6/26/2006	6/26/2006	9.7E-01	1.83	4.2E-01	1.83	4.6E-01	1.83
	38	5-VC-C-1105	6/26/2006		INVALID		INVALID		INVALID	
	47	6-VC-1136	6/26/2006	6/26/2006	6.6E-01	1.74	4.2E-01	1.74	4.3E-01	1.74
	53	7-VC-1098	6/26/2006	6/26/2006	8.3E-01	1.75	5.0E-01	1.75	4.9E-01	1.75
	62	8-VC-1076	6/26/2006	6/27/2006	5.2E-01	1.88	**2E-01**	1.88	2.4E-01	1.88
	72	9-VC-1107	7/3/2006	7/7/2006	1.9E+00	3.60	5.8E-01	1.80	5.6E-01	1.80
	73	9-VC-C-1166	7/3/2006		INVALID		INVALID		INVALID	
	82	10-VC-1108	7/3/2006	7/7/2006	6.7E-01	1.86	7.8E-01	1.86	7.0E-01	1.86
	89	11-VC-1062	7/3/2006	7/7/2006	2.2E+00	14.94	3.5E+00	14.94	3.0E+00	14.94
	96	12-VC-1085	7/3/2006	7/7/2006	7.3E-01	1.87	3.3E+00	14.96	2.8E+00	14.96
	97	12-VC-C-1094	7/3/2006	7/7/2006	7.7E-01	1.81	3.3E+00	14.50	2.7E+00	14.50
	106	13-VC-1153	7/10/2006	7/12/2006	1.2E+00	6.92	1.7E+00	6.92	1.6E+00	6.92
	115	14-VC-1060	7/10/2006	7/12/2006	2.2E+00	7.27	1.3E+00	7.27	1.2E+00	7.27
	116	14-VC-C-1134	7/10/2006	7/12/2006	2.0E+00	7.86	1.4E+00	7.86	1.4E+00	7.86
	124	15-VC-1176	7/10/2006	7/12/2006	2.6E+00	14.69	4.2E+00	14.69	3.9E+00	14.69
	130	16-VC-1185	7/10/2006	7/12/2006	5.8E-01	1.80	2.7E+00	14.42	2.7E+00	14.42
	142	17-VC-C-1111	7/17/2006	7/17/2006	1.6E-01	1.87	4.7E-01	1.87	5.2E-01	1.87
	152	18-VC-1066	7/17/2006	7/18/2006	5.2E+00	14.24	3.4E+00	14.24	3.3E+00	14.24
	159	19-VC-1141	7/17/2006	7/19/2006	4.4E+00	14.00	**1E+00**	14.00	**1E+00**	14.00
	165	20-VC-1146	7/17/2006	7/19/2006	1.8E+00	3.59	4.3E-01	1.80	5.5E-01	1.80
	173	21-VC-1055	7/24/2006	7/26/2006	2.9E+00	7.93	<6E-02	1.98	**8E-02**	1.98

Table 3: Ventura County Ambient Monitoring Results

Site	Log Number	Sample Identification	Date Received	Date Analyzed	Methyl Bromide		Cis-Telone		Trans-Telone	
					Results (µg/m3)	Dilution	Results (µg/m3)	Dilution	Results (µg/m3))	Dilution
VC	174	21-VC-C-1113	7/24/2006	7/26/2006	2.9E+00	6.99	<5E-02	1.75	**7E-02**	1.75
	183	22-VC-1176	7/24/2006	7/26/2006	8.0E+00	14.57	<6E-02	1.82	**5E-02**	1.82
	190	23-VC-1054	7/24/2006	7/26/2006	2.0E+00	7.18	<6E-02	1.79	**5E-02**	1.79
	196	24-VC-1140	7/24/2006	7/26/2006	4.5E+00	7.15	<6E-02	1.79	<4E-02	1.79
	204	25-VC-1145	7/31/2006	8/1/2006	5.4E+00	14.12	<5E-02	1.76	<4E-02	1.76
	213	26-VC-1071	7/31/2006	8/2/2006	1.3E+00	3.76	<6E-02	1.88	<4E-02	1.88
	214	26-VC-C-1177	7/31/2006	7/31/2006	1.2E+00	1.93	<6E-02	1.93	<4E-02	1.93
	223	27-VC-1090	7/31/2006	8/2/2006	3.1E+00	7.08	<5E-02	1.77	<4E-02	1.77
	229	28-VC-1144	7/31/2006	8/1/2006	6.5E+00	13.64	<5E-02	1.70	<4E-02	1.70
	241	29-VC-1125	8/7/2006	8/17/2006	1.7E+01	32.05	<6E-02	2.00	<5E-02	2.00
	242	29-VC-C-1102	8/7/2006	8/17/2006	1.8E+01	31.13	<6E-02	1.95	<5E-02	1.95
	252	30-VC-1132	8/7/2006	8/18/2006	4.3E+00	7.86	<6E-02	1.96	<5E-02	1.96
	253	30-VC-C-1128	8/7/2006	8/18/2006	4.3E+00	7.35	<6E-02	1.84	<4E-02	1.84
	263	31-VC-1135	8/7/2006	8/18/2006	3.1E+00	8.01	<6E-02	2.00	<5E-02	2.00
	264	31-VC-C-1141	8/7/2006	8/18/2006	3.1E+00	7.39	<6E-02	1.85	<4E-02	1.85
	271	32-VC-1180	8/7/2006	8/18/2006	4.5E+00	7.12	<6E-02	1.78	<4E-02	1.78

Notes:

If an analytical result is < LOD it is reported in the table as < the actual calculated LOD rounded to one significant figure.
If an analytical result is ≥ LOD and < EQL it is reported in the table to one significant figure and is **Bold**. Levels ≥ EQL are reported as the actual measured value and are reported to two significant figures.
INVALID: Data not collected for this sample. Sample pressure outside -10 to -5 inches Mercury upon receipt by lab.
Site identification codes -C- after the site identifiers are collocated samples for the samples with the corresponding day number.
Log numbers missing from the data table: not used 144 and 236, other log numbers not in the table are field QC samples reported in a separate table.

Table 3: Ventura County Ambient Monitoring Results

Site location identification:

CF: CA Dept of Forestry/CA Youth Authority
CT: CALTRANS
LV: Laguna Vista Elementary School
TO: Thousand Oaks High School
UD: United Water Conservation District
VC: Ventura County Fire Dept Maintenance Facility

Table 4: Laboratory Duplicate Precision for Bromomethane and 1,3-Dichloropropene (Telone)

Log Number	Sample Identification	Date Received	Date Analyzed	Results (ng/m3)			Relative Percent Difference*		
				Bromomethane	Cis-Telone	Trans-Telone	Bromomethane	Cis-Telone	Trans-Telone
12	2-VC-C-1071	6/19/2006	6/19/2006	1.68E+03	4.02E+02	5.56E+02			
				1.70E+03	4.18E+02	5.67E+02	0.94	3.95	2.02
29	4-LV-1122	6/19/2006	6/20/2006	3.24E+02	2.14E+02	2.78E+02			
				3.29E+02	2.12E+02	2.70E+02	1.61	-1.13	-2.94
45	6-UD-1167	6/26/2006	6/26/2006	1.01E+03	2.92E+02	3.01E+02			
				1.02E+03	2.98E+02	3.09E+02	0.72	2.11	2.69
54	7-LV-1099	6/26/2006	6/26/2006	7.04E+02	3.67E+02	3.74E+02			
				7.08E+02	3.87E+02	3.96E+02	0.50	5.15	5.82
90	11-LV-1052	7/3/2006	7/7/2006	9.91E+03	2.33E+03	1.99E+03			
				1.03E+04	2.44E+03	2.09E+03	3.62	4.64	5.11
97	12-VC-C-1094	7/3/2006	7/7/2006	7.74E+02	3.33E+03	2.70E+03			
				7.37E+02	3.20E+03	2.62E+03	-5.03	-4.02	-3.02
114	14-CF-C-1112	7/10/2006	7/12/2006	1.94E+03	1.14E+03	1.02E+03			
				1.93E+03	1.05E+03	9.44E+02	-0.83	-8.11	-7.22
121	14-TO-C-1054	7/10/2006	7/11/2006	9.15E+02	3.28E+02	2.47E+02			
				9.27E+02	3.30E+02	2.44E+02	1.21	0.78	-1.41
131	16-LV-1091	7/10/2006	7/11/2006	1.02E+03	5.89E+02	5.75E+02			
				1.00E+03	5.77E+02	5.66E+02	-1.34	-2.11	-1.50
155	18-TO-1070	7/17/2006	7/17/2006	1.60E+02	8.91E+01	8.14E+01			
				1.56E+02	9.23E+01	8.16E+01	-2.57	3.63	0.26
166	20-LV-1082	7/17/2006	7/18/2006	4.97E+02	2.92E+02	3.75E+02			
				4.99E+02	2.93E+02	3.72E+02	0.43	0.26	-0.78
172	21-CF-C-1105	7/24/2006	7/26/2006	1.98E+03	2.63E+02	4.17E+02			
				1.95E+03	2.59E+02	4.19E+02	-1.25	-1.41	0.59
182	22-CF-1180	7/24/2006	7/26/2006	3.46E+03	1.31E+02	2.20E+02			
				3.51E+03	1.30E+02	2.12E+02	1.53	-0.08	-3.40

Table 4: Laboratory Duplicate Precision for Bromomethane and 1,3-Dichloropropene (Telone)

Log Number	Sample Identification	Date Received	Date Analyzed	Results (ng/m3)			Relative Percent Difference*		
				Bromomethane	Cis-Telone	Trans-Telone	Bromomethane	Cis-Telone	Trans-Telone
191	23-LV-1085	7/24/2006	7/26/2006	2.22E+03	<LOD	<LOD			
				2.22E+03	<LOD	<LOD	0.26	NA	NA
207	25-TO-1050	7/31/2006	7/31/2006	2.29E+03	<LOD	<LOD			
				2.30E+03	<LOD	<LOD	1.35	NA	NA
219	26-TO-1106	7/31/2006	8/11/2006	1.86E+03	<LOD	<LOD			
				1.76E+03	<LOD	<LOD	-5.49	NA	NA
228	28-CF-1164	7/31/2006	8/3/2006	8.18E+03	<LOD	<LOD			
				8.26E+03	<LOD	<LOD	1.00	NA	NA
245	29-CT-1101	8/7/2006	8/18/2006	2.32E+03	<LOD	<LOD			
				2.32E+03	<LOD	<LOD	0.13	NA	NA
255	30-LV-C-1076	8/7/2006	8/15/2006	8.25E+02	<LOD	<LOD			
				8.26E+02	<LOD	<LOD	0.12	NA	NA
272	32-LV-1168	8/7/2006	8/17/2006	6.89E+03	<LOD	<LOD			
				6.81E+03	<LOD	<LOD	-1.05	NA	NA

Notes:
Relative Percent Difference Result A – Result B / (Average of Result A and B) * 100
<LOD Less than the Limit of Detection
m^3 Cubic meters
NA Not applicable
ng Nanograms

TABLE 5: Laboratory Control Sample Results

Date	Bromomethane			cis-1,3-dichloropropene			trans-1,3-dichloropropene		
	Expected (ng/m^3)	Actual (ng/m^3)	Recovery (%)	Expected (ng/m^3)	Actual (ng/m^3)	Recovery (%)	Expected (ng/m^3)	Actual (ng/m^3)	Recovery (%)
19-Jun-06	726.00	690.19	95.07	386.00	402.87	104.37	386.00	407.88	105.67
20-Jun-06	726.00	687.23	94.66	386.00	422.64	109.49	386.00	428.76	111.08
21-Jun-06	726.00	696.86	95.99	386.00	448.18	116.11	386.00	462.62	119.85
22-Jun-06	726.00	687.60	94.71	386.00	447.72	115.99	386.00	459.78	119.11
26-Jun-06	726.00	671.81	92.54	386.00	494.86	128.20	386.00	446.39	115.65
27-Jun-06	726.00	654.48	90.15	386.00	477.01	123.58	386.00	431.42	111.77
28-Jun-06	726.00	653.75	90.05	386.00	480.62	124.51	386.00	440.48	114.11
03-Jul-06	726.00	598.04	82.37	386.00	442.82	114.72	386.00	369.68	95.77
06-Jul-06	726.00	612.57	84.38	386.00	448.41	116.17	386.00	376.33	97.49
10-Jul-06	707.00	663.87	93.90	376.00	423.26	112.57	376.00	393.42	104.63
11-Jul-06	707.00	624.86	88.38	376.00	430.08	114.38	376.00	400.41	106.49
12-Jul-06	707.00	662.01	93.64	376.00	413.70	110.03	376.00	372.65	99.11
13-Jul-06	707.00	655.92	92.78	376.00	420.61	111.86	376.00	386.87	102.89
14-Jul-06	707.00	617.45	87.33	376.00	378.41	100.64	376.00	358.57	95.36
17-Jul-06	707.00	619.19	87.58	376.00	379.51	100.93	376.00	354.76	94.35
18-Jul-06	707.00	615.01	86.99	376.00	382.54	101.74	376.00	357.77	95.15
19-Jul-06	707.00	619.61	87.64	376.00	379.93	101.05	376.00	358.21	95.27
24-Jul-06	707.00	632.83	89.51	376.00	382.18	101.64	376.00	366.75	97.54
25-Jul-06	707.00	635.60	89.90	376.00	404.54	107.59	376.00	393.77	104.73
26-Jul-06	707.00	635.75	89.92	376.00	388.17	103.24	376.00	373.33	99.29
31-Jul-06	707.00	582.46	82.38	376.00	363.93	96.79	376.00	330.26	87.84
01-Aug-06	707.00	580.80	82.15	376.00	365.20	97.13	376.00	331.01	88.03
02-Aug-06	707.00	573.96	81.18	376.00	361.41	96.12	376.00	336.55	89.51
11-Aug-06	725.00	688.97	95.03	385.00	455.67	118.36	385.00	417.63	108.48
14-Aug-06	725.00	694.59	95.81	385.00	454.86	118.15	385.00	419.35	108.92
15-Aug-06	725.00	735.44	101.44	385.00	467.43	121.41	385.00	428.22	111.23
16-Aug-06	725.00	749.93	103.44	385.00	433.55	112.61	385.00	398.16	103.42
17-Aug-06	725.00	713.91	98.47	385.00	421.80	109.56	385.00	415.72	107.98
18-Aug-06	725.00	743.40	102.54	385.00	442.75	115.00	385.00	431.06	111.96

Table 6: Continuing Calibration Verification Standard Results Summary

Analyte	Average Expected Concentration (ng/m^3)	Average Actual Concentration (ng/m^3)	Average Percent Recovery	Average Percent Standard Deviation
Bromomethane	709	722	102	2.19
Cis-1,3-dichloropropene	452	457	101	5.72
Trans-1,3-dichlorpropene	452	462	102	4.95

TABLE 7: Canister Spikes

Lab Spike Results

Date	Sample ID	Canister Number	Bromomethane			cis-1,3-dichloropropene			trans-1,3-dichloropropene		
			Expected (ng/m^3)	Actual (ng/m^3)	Recovery (%)	Expected (ng/m^3)	Actual (ng/m^3)	Recovery (%)	Expected (ng/m^3)	Actual (ng/m^3)	Recovery (%)
6/20/2006	06MTLS01	1151	372.50	371.75	99.80	42.80	40.36	94.30	42.80	41.09	96.00
6/27/2006	06MTLS02	1072	573.88	551.47	96.10	65.90	62.88	95.42	65.90	71.38	108.32
7/13/2006	06MTLS03	1101	363.34	368.30	101.37	41.73	45.70	109.52	41.73	47.26	113.26
7/13/2006	06MTLS04	1144	332.41	617.97	185.91	38.17	76.19	199.61	38.17	66.11	173.20
7/18/2006	06MTLS05	1076	372.52	335.70	90.12	42.78	40.09	93.71	42.78	42.10	98.41
7/25/2006	06MTLS06	1094	591.32	560.13	94.73	67.91	64.15	94.46	67.91	67.81	99.85
8/1/2006	06MTLS07	1130	368.79	333.98	90.56	42.35	39.21	92.58	42.35	38.94	91.94
8/17/2006	06MTLS08	1041	622.95	634.45	101.85	71.54	28.16	39.36	71.54	20.33	28.42

Trip Spike Results

Date	Sample ID	Canister Number	Bromomethane			cis-1,3-dichloropropene			trans-1,3-dichloropropene		
			Expected (ng/m^3)	Actual (ng/m^3)	Recovery (%)	Expected (ng/m^3)	Actual (ng/m^3)	Recovery (%)	Expected (ng/m^3)	Actual (ng/m^3)	Recovery (%)
6/20/2006	06MT31TS	1057	361.70	358.00	98.98	41.54	40.91	98.48	41.54	48.15	115.91
6/27/2006	06MT66TS	1146	585.38	626.19	106.97	67.20	70.64	105.12	67.20	76.24	113.45
7/13/2006	06MT102TS	1065	368.79	303.50	82.30	42.35	35.35	83.46	42.35	36.35	85.82
7/13/2006	06MT134TS	1171	354.35	607.78	171.52	40.70	72.53	178.23	40.70	65.23	160.29
7/18/2006	06MT136TS	1113	376.32	368.86	98.02	43.22	0.00	0.00	43.22	0.00	0.00
7/25/2006	06MT201TS	1052	354.35	512.64	144.67	67.91	97.80	144.01	67.91	102.43	150.83
8/1/2006	06MT235TS	1154	368.81	330.22	89.54	42.36	39.10	92.31	42.36	42.71	100.84
8/17/2006	06MT275TS	1151	573.85	594.46	103.59	65.90	0.00	0.00	65.90	0.00	0.00
8/19/2006	06MT275TSR	1151	NA	NA	NA	1054.46	29.76	2.82	1054.46	13.65	1.29

TABLE 7: Canister Spikes

Field Spike Results[1]

Date	Sample ID	Canister Number	Bromomethane			cis-1,3-dichloropropene			trans-1,3-dichloropropene		
			Expected (ng/m^3)	Actual (ng/m^3)	Recovery (%)	Expected (ng/m^3)	Actual (ng/m^3)	Recovery (%)	Expected (ng/m^3)	Actual (ng/m^3)	Recovery (%)
6/20/2006	06MT25FS	1059	367.00	371.28	101.17	42.14	43.20	102.52	42.14	48.82	115.85
6/27/2006	06MT59FS	1149	579.60	639.05	110.26	66.60	84.63	127.07	66.60	83.15	124.85
7/13/2006	06MT086FS	1168	358.21	330.86	92.36	41.14	32.18	78.22	41.14	36.78	89.40
7/13/2006	06MT110FS	1178	354.35	617.81	174.35	40.70	88.55	217.57	40.70	70.28	172.68
7/18/2006	06MT156FS	1089	374.43	364.78	97.42	43.00	40.91	95.13	43.00	43.55	101.27
7/25/2006	06MT187FS	1173	591.32	754.27	127.56	67.91	72.16	106.26	67.91	72.13	106.21
8/1/2006	06MT208FS	1123	380.16	352.96	92.85	43.66	36.03	82.53	43.66	36.58	83.79
8/18/2006	06MT258FS	1127	347.30	532.48	153.32	39.89	40.24	100.89	39.89	38.79	97.24

Notes:

1 Results are not corrected for background levels. The collocated background sample is the sample with an ID number one less then the field spike ID, such as 06MT25FS would have 06MT24 as the background sample, etc.

NA Not Applicable

TABLE 8: Trip Blank Results

Sample Identification	Canister Number	Date Received	Date Analyzed	Methyl Bromide		Cis-Telone		Trans-Telone		Dilution
				ng/m^3	LOD (ng/m^3)	ng/m^3	LOD (ng/m^3)	ng/m^3	LOD (ng/m^3)	
2-TB-1134	1134	6/19/2006	6/19/2006	334	9.76	<LOD	53.81	<LOD	40.06	1.75
8-TB-1158	1158	6/26/2006	6/27/2006	23	9.81	<LOD	54.08	<LOD	40.26	1.76
12-TB-1066	1066	7/3/2006	7/3/2006	<LOD	9.96	<LOD	54.90	<LOD	40.87	1.78
16-TB-1164	1164	7/10/2006	7/10/2006	<LOD	9.56	<LOD	52.72	<LOD	39.25	1.71
17-TB-1165	1165	7/17/2006	7/17/2006	<LOD	10.01	<LOD	55.18	<LOD	41.08	1.79
24-TB-1110	1110	7/24/2006	7/25/2006	<LOD	9.86	<LOD	54.36	<LOD	40.47	1.77
28-TB-1042	1042	7/31/2006	7/31/2006	<LOD	9.76	<LOD	53.81	<LOD	40.06	1.75
32-TB-1104	1104	8/7/2006	8/14/2006	<LOD	9.91	<LOD	54.63	<LOD	40.67	1.78

Appendices: 1 through 4

Appendix 1

Standard Operating Procedure for the Sampling and Analysis of Bromomethane and 1,3-dichloropropene in Silco™ Canisters

California Environmental Protection Agency

Air Resources Board

Northern Laboratory Branch
Monitoring and Laboratory Division
CALIFORNIA AIR RESOURCES BOARD

Standard Operating Procedure for the Sampling and Analysis of Bromomethane and 1,3-dichloropropene In Silco™ Canisters

APPROVED BY:

Russell Grace, Manager
Special Analysis Section

DISCLAIMER: Mention of any trade name or commercial product in this Standard Operating Procedure does not constitute endorsement or recommendation of this product by the Air Resources Board. Specific brand names and instrument descriptions listed in the Standard Operating Procedure are equipment used by the ARB laboratory. Any functionally equivalent instrumentation can be used.

1. SCOPE

This method is for the sampling and analysis of bromomethane (Methyl Bromide) and telone (cis-1,3-dichloropropene and trans-1,3-dichloropropene) in ambient air using six-liter Silco™ canisters for sample collection. Collected samples are analyzed by gas chromatography/mass spectrometry using a cryogenic sampler.

2. SUMMARY OF METHOD

Ambient air is collected into evacuated six-liter Silco™ canisters. Field sampling uses a sub-atmospheric pressure collection mode. Sample canisters are pressurized in the laboratory to facilitate laboratory sampling. Samples are analyzed by gas chromatography/mass spectrometry (GC/MS) using a cryogenic concentrator to prepare the air sample. Samples are analyzed in the Selected Ion Monitoring (SIM) mode using external standard calibration.

3. INTERFERENCES/LIMITATIONS

Interference may result from improperly cleaned canisters. Analysis of samples containing high concentrations of bromomethane or telone may cause significant contamination of the analytical equipment. Co-eluting compounds trapped during sample collection may interfere.

4. EQUIPMENT AND CONDITIONS

A. Instrumentation

Hewlett Packard 6890 Series Plus gas chromatograph:
Column: Restek Rtx-200, 60 meter, 0.32mm I.D., 1.50 micron film thickness
GC temperature program: initial -10^{o} C, initial time 0 minutes, to 80^{o} C @ 10^{o} C/min, to 200^{o} C @ 25^{o} C/min, hold 1 minute, to 240 ^{o} C @ 25^{o} C/min, hold 1 minute.
Carrier Gas: Helium, grade 5

Hewlett Packard 5973 mass selective detector:
Acquisition Mode: SIM
Tune File: PFTBA Autotune
Ions Monitored: 74.8, 93.8, 95.8, 96.8, 98.8, 110.0
Quant Ions: 74.8, 93.8
Solvent Delay: 5.00 min

Varian Stand Alone cryogenic concentrator:
Valve Oven: 60^{o} C
Autosampler Oven: 60^{o} C
Nafion Dryer: 60^{o} C
Sample Line: 60^{o}
Cryotrap: -180^{o} C to 150^{o}

Transfer Line: 150^{o} C
Cryofocus: -180^{o} C to 150^{o} C
Sample Size: 15 ml to 400 ml
Internal Standard Loop: 1 ml

B. Auxiliary Apparatus

Compressed helium: grade five
Compressed air: ultra zero grade
Compressed nitrogen: grade five
Liquid nitrogen
Gas standards: certified if available
Restek, 6.0 liter Silcosteel canisters: with silcosteel valve
Pressure gauge: able to measure –30mm to 30 psig
Canister cleaning system (see Appendix 2)

5. ANALYSIS OF SAMPLES

A. Perform a PFTBA autotune and evaluate tune criteria (Appendix 3). Place a copy of the autotune results in the autotune folder.
B. Check and record the pressure of the field sample canisters. Pressurize the field sample canisters to approximately 5 psig with ultra pure nitrogen. Record the final pressure.
C. Prepare a sample sequence for the GC/MS. The sequence should include a calibration check, a system blank and a duplicate for every 10 samples. Load the sequence into the GC/MS in the remote start mode.
D. Prepare a sample sequence for the Varian sampler. Organize the sample sequence as follows: system blank, calibration check, field samples, duplicate field sample, calibration check. If the calibration check is not within $\pm$20% of its expected value the system must be evaluated and recalibrated if necessary.
E. Attach the sample canisters to the Varian autosampler ring as per the sequence. Execute the sequence.
F. Sample analysis report will print out after each analysis.

CALCULATIONS: Sub-ambient sampling requires pressurization before analysis. Instrument reports will be in units of ng/m^3 and must be corrected for the analysis dilution using the following calculation:

(Fp / Ip) X Ci = Cr

Fp = final canister pressure in mm Hg
Ip = initial canister pressure in mm Hg
Ci = concentration from the analysis report in ng/m^3
Cr = reported concentration in ng/m^3

6. QUALITY ASSURANCE

A. Instrument Reproducibility

Establish the reproducibility of the instrument and analytical method as follows: Inject six replicate samples of each target compound at three concentrations (low, mid and high range). Reproducibility study results are presented in Table 1.

B. Linearity

A six-point calibration curve is made for each of the target compounds. The curve is constructed using linear regression analysis. Appendix 4 contains method calibration data.

C. Minimum Detection Limit

Detection Limit is based on US EPA MDL calculation. Using the analysis of seven replicates of a low-level spike, the method detection limit (MDL), and the estimated quantitation limit (EQL) for method compounds are calculated by:

MDL = 3.14*s
EQL = 5*MDL

where s = the standard deviation of the response calculated for the seven replicate spikes. The MDL and EQL are calculated as follows (**data is updated for 2006 study**):

bromomethane MDL = 3.14 (0.0018 ug/m3) = 0.0057 ug/m3
EQL = 5(0.0057 ug/m3) = 0.029 ug/m3

cis-1,3-dichloropropene MDL = 3.14 (0.0098 ug/m3) = 0.031 ug/m3
EQL = 5(0.031 ug/m3) = 0.15 ug/m3

trans-1,3-dichloropropene MDL = 3.14 (0.0073 ug/m3) = 0.023 ug/m3
EQL = 5(0.023 ug/m3) = 0.11 ug/m3

Assuming a 1:1.5 dilution to pressurize ambient samples:

Bromomethane EQL = 1.79 (0.029 ug/m3) = 0.052 ug/m3

cis-1,3-dichloropropene EQL = 1.79 (0.40 ug/m3) = 0.28 ug/m3

trans-1,3-dichloropropene EQL = 1.79 (0.11 ug/m3) = 0.20 ug/m3

Results are reported to 2 significant figures above the EQL. Results below EQL and above MDL are reported to one significant figure. Results less than MDL are reported as less than the calculated MDL to one significant figure.

D. Calibration Check

A calibration check sample is analyzed at the beginning of each analytical batch and following each batch of ten samples. The value of the check must be ±20 % of the expected value. If the check is outside limits the prior batch of 10 samples must be reanalyzed.

E. Laboratory Control Sample

A laboratory control sample (LCS) is included with each analytical batch. The analytical value of the LCS must be within three standard deviations of it's historical mean (± 3 σ). If the LCS is outside of limits then the samples in the analytical batch must be reanalyzed.

F. Storage Stability

If the method storage stability of target compounds is unknown then a storage stability study should be conducted. The study should be conducted for a time period which represents the maximum hold time for field samples. In 2006 the storage stability for these compounds was determined to be at least 72 days.

7. SAFETY PRECAUTIONS

This procedure does not address all of the safety concerns associated with chemical analysis. It is the responsibility of the analyst to establish appropriate safety and health practices. For hazard information and guidance refer to the material safety data sheets (MSDS) of any chemicals used in this procedure. All applicable safety precautions must be observed for the use of compressed gas cylinders.

Appendix 2

Standard Operating Procedure For Cleaning Silco™ Canisters

Northern Laboratory Branch
Monitoring and Laboratory Division
CALIFORNIA AIR RESOURCES BOARD

SOP MLD SAS P1, Version 1.0
PESTICIDE SUPPORT PROGRAM

STANDARD OPERATING PROCEDURE FOR CLEANING SILCO™ CANISTERS

APPROVED BY:
Michael P. Spears, Manager
Special Analysis Section

November 15, 2000

DISCLAIMER: Mention of any trade name or commercial product in this Standard Operating Procedure does not constitute endorsement or recommendation of this product by the Air Resources Board (ARB). Specific brand names and instrument descriptions listed in the Standard Operating Procedure are for equipment used by the ARB laboratory.

1 INTRODUCTION

This document describes a method for cleaning six (6)-liter Silco™ canisters used for ambient air sampling of pesticides. The procedure is used to evacuate and pressurize individual canisters or groups of canisters in a heated oven.

2 SUMMARY OF METHOD

This method is based on EPA Method TO-14A. Up to eight (8) 6-liter canisters are connected to a manifold in an oven and evacuated to less than –30 inches of mercury. The canisters are heated to 70 degrees centigrade and purged four times with humidified ultrapure nitrogen. The purge cycling is from –30 inches mercury (Hg) to 25 pounds per square inch gauge (psig). Each cycle is 24 minutes (12 minutes vacuum and 12 minutes pressure). Both manual and automated procedures are provided. A liquid nitrogen cold trap on the vacuum line prohibits back-diffusion of the vacuum pump oil vapor and prevents water vapor from entering the vacuum pump.

3 INTERFERENCES AND LIMITATIONS

3.1 Canisters used for standards or controls may need reconditioning on a regular basis.

3.2 Canisters containing high pesticide concentrations may require more than one cleaning session to meet specified contamination criteria.

4 APPARATUS

4.1 Stainless steel tubing, ¾ inch

4.2 Duo-Seal, two stage, vacuum pump, Edwards.

4.3 Stabil-Therm Electric Oven, Pro-Tronix-11.

4.4 Dewar, cylindrical, 1600 ml capacity, 80 mm ID, Kontes KM-611410-2116.

4.5 Valves, 1/2" Varian, Model # L8732-301

4.6 Safety glasses and cryogenic gloves

4.7 Valco Instruments Company Inc., Digital Valve Sequence Programmer

4.8 Humidifier Canister, a 6L SilcoCan™ canister filled with $\geq$500 ml of organic free distilled water (HPLC grade).

5 MATERIALS

5.1 Grade five ultra pure compressed nitrogen.

5.2 Liquid nitrogen.

5.3 HPLC grade water.

6 SAFETY

6.1 Do not pressurize the canisters to more than 30 psig.

6.2 Keep the liquid nitrogen dewar filled whenever the vacuum pump is running.

6.3 Do not allow trapped vacuum vapors to move into the clean part of the system.

6.4 Check vacuum pump oil level periodically. Change oil every six months.

6.5 The humidifying system (system bubbler) should always contain at least 500 ml of water for proper canister humidifying.

6.6 The nitrogen cylinder should be changed whenever the cylinder pressure drops below 500 psig.

7.0 PROCEDURE

7.1. Vent all canisters in the hood.

7.2. Record canister number, sample number, date, and the canister designated as the batch quality control check (QA) in the Can Cleaning Logbook.

7.3. Fill dewar with liquid nitrogen.

7.4. Load canisters in the oven, attaching to the manifold and tighten so canisters do not rotate. Make certain the canister valves are open and the QC sample is easily reached.

7.5. Set oven heater to no more then 70 degrees centigrade, turn on heater and close the oven doors.

7.6. If cleaning less than eight (8) canisters the unused ports must be capped.

7.7. Turn on the vacuum pump, open the nitrogen tank and valves located on top of the humidifying canister. Set the nitrogen tank's second stage regulator between 20 and 25 psig.

7.8. Purging Cycle Timer usage

7.8.1 The Valco instrument timers are located on the top of the canister-cleaning oven. Two black boxes make up the complete timing system.

7.8.2 The upper box is used to set the cycle times and to set manual or automatic mode.

7.8.3 Each purge cycle will last for 24 minutes, 12 minutes for evacuating and 12 minutes for pressurizing.

7.8.4 The total cleaning process is a minimum of four purging cycles or a total of 96 minutes.

7.8.5 Set digital switches above light one and light two to 12 minutes (See Figure 1). These represent the evacuating and pressurizing cycle times respectively. The digital switches associated with lights 3 and 4 are set to zero.

7.8.6 The toggle switches located above mx.1 are set to "m" (minutes) for the lights 1 and 2 and set to "s" (seconds) for lights 3 and 4 (See Figure 1).

7.8.7 The lower box is used to set the total cycle time. The number of purging cycles needed determines this. If using four purging cycles then the total time is set to 96 minutes.

7.8.8 The digital switches on the lower box should be set as follows for a purging cycle of 96 minutes: 1, 96, 0, 1, or 1,48,48,0.

7.8.9 Digital switches associated with lights 1 and 4 are used to turn on and turn off the automatic timing sequence while switches associated with lights 2 and 3 are set for total time. Each digital switch is set from 0 to 99 minutes. Therefore the maximum possible time is 198 minutes.

7.9 After the upper and lower boxes have been set, press the auto button on the upper timer (See Figure 1). The auto light should come on.

7.10 Press the run button on the lower timer (See Figure 1). The first light (1) should light briefly and then switch to light 2. The system will evacuate to –30 inches Hg for 12 minutes.

7.11 Be sure to check the in-line pressure gauge to make certain the system is operating correctly.

7.12 At this point the system will switch between vacuum and pressure automatically ending the purging cycle with the canisters being under vacuum (-30 inches Hg).

7.13 The canister cleaning system can be manually operated.

7.13.1 Proceed with loading the oven as stated above.

7.13.2 Set the upper box to the desired cycle times.

7.13.3 Using the advance button, activate either the vacuum cycle or pressure cycle.

7.13.3.1 The lights for digital timers 1 and 2 will light indicating which cycle is being used. Also monitoring the pressure gauge will indicate what cycle is being used.

7.13.3.2 Repeat this cycle three (3) times. On the last pressurization cycle, close the valve on the canister to be used as the QC check.

7.14 Perform a final canister evacuation, then close the remaining canister valves.

7.15 Turn off the vacuum pump, close the humidifier valves, and shut off the compressed nitrogen tank.

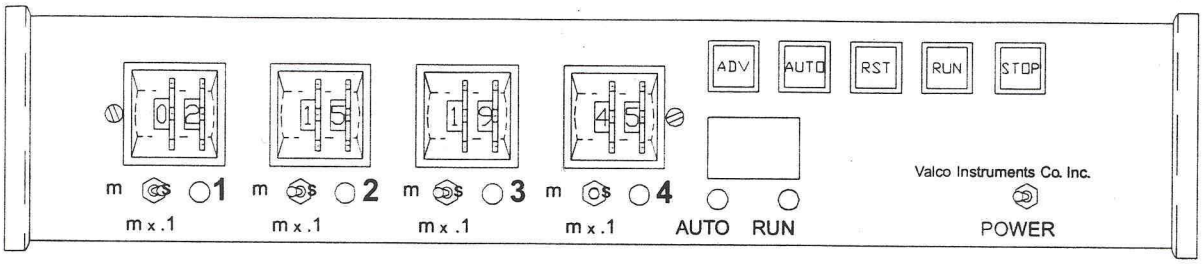
7.16 Turn off the canister oven heater, allow the canisters to cool to room temperature and then remove the canisters.

7.17 Give the QC check canister to the instrument operator for analysis.

7.18 Place the remaining unchecked canisters on the shelf located immediately next to the canister-cleaning oven.

7.19 After the canisters have been determined to be clean the field sampling sheets are photocopied. One copy is given to the project manager while one copy is placed in the field sampling sheet binder.

FIGURE 1



Revision History

Version	Date	Changes
1.0	November 15, 2000	Initial Version

Appendix 3

Mass Selective Detector Autotune Criteria

Mass Selective Detector Autotune Criteria

A standard autotune routine is performed on the mass selective detector (MSD) each day prior to sample analysis. The autotune report is evaluated for the following:

1. An unusual change in electron multiplier voltage.
2. Peak width for tune masses should be between 0.4 amu and 0.6 amu.
3. The relative abundance of tune mass 219.0 should be greater than 30% of tune mass 69.0.
4. Isotope abundance ratio for mass 70.0 should be between 0.54% and 1.6%. Isotope abundance ratio for tune mass 220.0 should be between 3.2% and 5.4%.
5. Air leaks in the GC/MS system are checked by evaluating the levels of masses 28 and 18 (nitrogen and water).

If autotune criteria are not met the system should be evaluated for problems. After all system problems are resolved, the detector should be autotuned before sample analysis. File the autotune reports in the instrument autotune folder.

Appendix 4

Calibration Standard Preparation for Bromomethane and 1,3-Dichloropropene, MSD-4 and MSD-3

Calibration Standard Preparation for Bromomethane and 1,3-Dichloropropene
MSD-4

The certified stock gas used for calibration during this study was purchased from Spectra Gases and has the following specifications:

Cylinder # CC-197279

BROMOMETHANE	10.0 PPB
CIS 1,3-DICHLOROPROPENE	5.0 PPB
TRANS 1,3-DICHLOROPROPENE	5.0 PPB

Working analysis standard is prepared by diluting the stock gas using the following procedure.

1. A clean six-liter Silco canister is evacuated to –30 inches Hg.
2. 300 ml of stock gas is transferred to the canister using a gas tight syringe.
3. 100 ul of reagent grade water is added to the canister using a syringe and syringe adapter.
4. The canister is pressurized to 29.4 psig with ultra pure nitrogen.

The canister will contain analytes at the following concentrations:

BROMOMETHANE	0.647 $\mu g/m^3$
CIS 1,3-DICHLOROPROPENE	0.382 $\mu g/m^3$
TRANS 1,3-DICHLOROPROPENE	0.382 $\mu g/m^3$

The standard sample injection is 400 ml. A calibration curve is generated by using the cryo sampler to introduce the following volumes of working standard to the GCMS.

Volume	bromomethane	cis 1,3-DCP	trans 1,3-DCP
400 ml	0.647 $\mu g/m^3$	0.382 $\mu g/m^3$	0.382 $\mu g/m^3$
200 ml	0.323 $\mu g/m^3$	0.191 $\mu g/m^3$	0.191 $\mu g/m^3$
100 ml	0.162 $\mu g/m^3$	0.095 $\mu g/m^3$	0.095 $\mu g/m^3$
50 ml	0.081 $\mu g/m^3$	0.048 $\mu g/m^3$	0.048 $\mu g/m^3$
25 ml	0.040 $\mu g/m^3$	0.024 $\mu g/m^3$	0.024 $\mu g/m^3$
15 ml	0.020 $\mu g/m^3$	0.014 $\mu g/m^3$	0.014 $\mu g/m^3$

APPENDIX D

Canister Field Log Sheets

CANISTER FIELD LOG SHEET

Project: Methyl Bromide/Telone (MeBr/Telone) Ambient Air Monitoring In Ventura County

Start Flow Set: 3.0 ±0.1ccm End Flow Criteria: 3.0 ccm ±25%

Log #	Sample Name	Sampler ID Number	Date & Time (PST)		Canister Vacuum Display		Mass Flow Meter Display		Corrected Average Flow	Weather			Initials	
			Start	End	Start	End	Start	End		Comment Number	P,C,F&R Start	P,C,F&R End	Start	End
001	1-VD-1177	11	6/14/06 0700	6/15/06 0635	-28.0	-4.0	3.00	1.30	2.8		K	K	JR	JR
002	1-CF-1166	16	6/14/06 0730	6/15/06 0715	-28.0	-2.0	2.98	0.95	2.6		K	K	JR	JR
003	1-VC-	9	6/14/06 0830	6/15/06 0755	-30.0	-5.0	2.95	1.50	2.9		K	K	JR	JR
004	1-CT-1113	7	6/14/06 1030	6/15/06 0935	-30.0	-7.0	2.95	1.60	3.0		K	K	JR	JR
005	1-TO-1053	1	6/14/06 1130	6/15/06 1040	-30.0	-4.0	2.95	2.00	3.2		K	K	JR	JR
006	2-UD-1129	11	6/15/06 0645	6/16/06 0640	-28.0	-9.0	2.40	1.95	2.9		K	K	JR	JR
007	2-UD-C-1141	4	6/15/06 0650	6/16/06 0640	-30.0	-5.0	2.40	1.80	2.8		K	K	JR	JR
008	2-CF-1142	16	6/15/06 0720	6/16/06 0705	-30.0	-7.0	2.42	2.40	3.1		K	K	JR	JR
009	2-CF-C-1082	10	6/15/06 0725	6/16/06 0705	-30.0	-6.0	2.40	2.40	3.1		K	K	JR	JR
010	2-TB-1134	VEH	6/12/06 1400	6/12/06 1400	NA	NA	N/A	NA	#VALUE!				JR	JR
011	2-VC-1050	9	6/15/06 0800	6/16/06 0730	-30.0	-7.0	2.40	2.25	3.0		K	K	JR	JR
012	2-VC-C-1071	3	6/15/06 0810	6/16/06 0740	-30.0	-9.5	2.40	1.70	2.7		K	K	JR	JR
013	2-LV-1178	14	6/15/06 0845	6/16/06 0815	-30.0	-7.0	2.40	2.25	3.0		K	K	JR	JR
014	2-LV-C-1051	2	6/15/06 0850	6/16/06 0820	-30.0	-5.0	2.40	2.00	2.9		K	K	JR	JR
015	2-CT-1066	7	6/15/06 0940	6/16/06 0855	-30.0	-7.0	2.50	1.60	2.7		K	K	JR	JR
016	2-CT-C-1124	15	6/15/06 0945	6/16/06 0855	-29.0	-8.0	2.45	1.60	2.7		K	K	JR	JR
017	2-TO-1196	1	6/15/06 1045	6/16/06 1015	-30.0	-7.0	2.40	2.40	3.1		K	K	JR	AC

Comments: 6/11/06 Round Up applied at school site (TO).

No sample taken at LV on 6/14 due to School Requirements.

Sampler #7 near high end adjustment. Sampler #13 (TO) had Zflow; replaced orifice and frit.

#10 used as trip blank due to damaged threads

Note: Highlighted yellow cells indicate possible invalidation factors.

MFM Used #: 21024 Slope: 1.065 Intrcpt: 0.537

Weather Codes: K = Clear, P = Partly Cloudy, C = ≥67% Cloudy, F = Fog, and R = Rain (any)

CANISTER FIELD LOG SHEET

Project: Methyl Bromide/Telone (MeBr/Telone) Ambient Air Monitoring In Ventura County

Start Flow Set: 3.0 ±0.1ccm End Flow Criteria: 3.0 ccm ±25%

Log #	Sample Name	Sampler ID Number	Date & Time		Canister Vacuum Display		Mass Flow Meter Display		Corrected Average Flow	Weather			Initials	
			Start	End	Start	End	Start	End		Comment Number	P,C,F&R Start	P,C,F&R End	Start	End
018	2-TO-C-1104	13	6/15/06 1050	6/16/06 1020	-30.0	-4.5	2.40	2.30	3.0	1	K	K	JR	AC
019	3-UD-1169	11	6/16/06 0645	6/17/06 0645	-29.0	-10.0	2.40	1.95	2.9		K	F	AC	AC
020	3-CF-1171	16	6/16/06 0710	6/17/06 0710	-30.0	-7.0	2.30	2.45	3.1		K	K	AC	AC
021	3-VC-1106	9	6/16/06 0735	6/17/06 0730	-30.0	-7.5	2.30	2.30	3.0		K	K	AC	AC
022	3-LV-1144	14	6/16/06 0820	6/17/06 0805	-30.0	-7.0	2.45	2.30	3.1		K	K	AC	AC
023	3-CT-1067	15	6/16/06 0900	6/17/06 0845	-29.5	-7.5	2.40	1.70	2.7		K	K	AC	AC
024	3-TO-1103	1	6/16/06 1025	6/17/06 1000	-30.0	-7.5	2.40	2.50	3.1		K	K	AC	AC
025	3-TO-FS-1059	13	6/16/06 1030	6/17/06 0930	-28.0	-4.5	2.20	2.30	2.9		K	K	AC	AC
026	4-UD-1060	11	6/17/06 0650	6/18/06 0620	-30.0	-9.5	2.40	2.10	2.9		F	F	AC	AC
027	4-CF-1138	16	6/17/06 0715	6/18/06 0650	-30.0	-7.0	2.50	2.50	3.2		K	F	AC	AC
028	4-VC-1140	9	6/17/06 0735	6/18/06 0715	-30.0	-8.5	2.40	2.30	3.0	2	K	C	AC	AC
029	4-LV-1122	14	6/17/06 0810	6/18/06 0745	-30.0	-7.0	2.40	2.40	3.1		K	C	AC	AC
030	4-CT-1064	15	6/17/06 0845	6/19/06 0845	-29.5	0.0	2.40	0.00	1.8	3	K	C	AC	JR
031	4-TO-TS-1057	VEH	6/17/06 0920	6/17/06 0920	NA	NA	NA	NA	#VALUE!		K	K	AC	AC
032	4-TO-1055	1	6/17/06 0:00	6/18/06 0945	-30.0	-8.0	2.40	2.40	3.1		K	K	AC	AC
033	5-UD-1164	11	6/19/06 0640	6/20/06 0635	-28.0	-12.0	2.00	1.80	2.6		C	C	JR	JR
034	5-UD-C-1181	4	6/19/06 0650	6/20/06 0640	-30.0	-8.5	2.40	2.30	3.0		C	C	JR	JR

Comments

1. Sampler #13 - New orifice + frit (1st run log #18) w/MFM # 21024 - Sweet spot target 2.45 - 2.50 Displ.
2. Adjusted flow on Flow Controller to 2.4 from 2.3.
3. Could not get access to can at end of run. Yard Locked.
4. 6/16/0(Last day of school, Laguna Vista

MFM Used #: 21024 **Slope:** 1.065 **Intrcpt:** 0.537

Weather Codes: K = Clear, P = Partly Cloudy, C = ≥67% Cloudy, F = Fog, and R = Rain (any)

CANISTER FIELD LOG SHEET

Project: Methyl Bromide/Telone (MeBr/Telone) Ambient Air Monitoring In Ventura County

Start Flow Set: 3.0 ±0.1ccm End Flow Criteria: 3.0 ccm ±25%

Log #	Sample Name	Sampler ID Number	Date & Time		Canister Vacuum Display		Mass Flow Meter Display		Corrected Average Flow	Weather			Initials	
			Start	End	Start	End	Start	End		Comment Number	P,C,F&R Start	P,C,F&R End	Start	End
035	5-CF-1182	16	6/19/06 0710	6/20/06 0705	-30.0	-6.5	2.55	2.55	3.3		C	C	JR	JR
036	5-CF-C-1165	10	6/19/6 0720	6/20/06 0710	-30.0	-6.5	2.55	2.50	3.2		C	C	JR	JR
037	5-VC-1070	9	6/19/06 0740	6/20/06 0735	-30.0	-8.0	2.40	2.30	3.0	1	C	C	JR	JR
038	5-VC-C-1105	3	6/19/06 0745	6/20/06 0745	-30.0	-14.5	2.45	1.70	2.7		C	C	JR	JR
039	5-LV-1097	14	6/19/06 0815	6/20/06 0810	-30.0	-7.0	2.55	2.45	3.2		C	C	JR	JR
040	5-LV-C-1180	2	6/19/06 0820	6/20/06 0815	-30.0	-4.0	2.45	2.20	3.0	2	C	C	JR	JR
041	5-CT-1089	15	6/19/06 0850	6/20/06 0850	-29.0	-8.5	2.35	1.60	2.6		C	K	JR	JR
042	5-CT-C-1186	7	6/19/06 0855	6/20/06 0855	-30.0	-8.0	2.55	1.45	2.7		C	K	JR	JR
043	5-TO-1091	13	6/19/06 0940	6/20/06 1005	-30.0	-4.0	2.10	2.25	2.9		C	K	JR	JR
044	5-TO-C-1172	1	6/19/06 0945	6/20/06 1005	-30.0	-7.0	2.50	2.45	3.2		C	K	JR	JR
045	6-UD-1167	11	6/20/06 0640	6/21/06 0640	-27.0	-8.0	2.45	1.90	2.9	3	C	C	JR	JR
046	6-CF-1126	16	6/20/06 0710	6/21/06 0705	-27.0	-6.0	2.50	2.60	3.3		C	C	JR	JR
047	6-VC-1136	9	6/20/06 0735	6/21/06 0730	-30.0	-7.5	2.45	2.20	3.0		C	C	JR	JR
048	6-LV-1111	14	6/20/06 0815	6/21/06 0800	-30.0	-7.5	2.45	2.40	3.1		K	C	JR	JR
049	6-CT-1061	15	6/20/06 0925	6/21/06 0840	-29.0	-7.5	2.45	1.80	2.8	4	K	C	JR	JR
050	6-TO-1086	13	6/20/06 1010	6/21/06 0940	-30.0	-5.0	2.30	2.00	2.8		K	K	JR	JR
051	7-UD-1063	11	6/21/06 0645	6/22/06 0630	-30.0	-9.0	2.20	2.00	2.8		C	C	JR	JR

Comments

1. Sampler #3 (VC-C) v.sensitive to flow qdjustment

2. Sampler #2 (LV); can #1180, hard to start threads.

#3: Log# 45 (sampler #11) Flow maxed-out.

#4: Log#49 (sampler #15)- replaced frit due to low flow

#5: Log #51 (sampler #11)-Flow maxed-out.

MFM Used #: 21024 Slope: 1.065 Intrcpt: 0.537

Weather Codes: K = Clear, P = Partly Cloudy, C = ≥67% Cloudy, F = Fog, and R = Rain (any)

CANISTER FIELD LOG SHEET

Project: Methyl Bromide/Telone (MeBr/Telone) Ambient Air Monitoring In Ventura County

Start Flow Set: 3.0 ±0.1ccm End Flow Criteria: 3.0 ccm ±25%

Log #	Sample Name	Sampler ID Number	Date & Time		Canister Vacuum Display		Mass Flow Meter Display		Corrected Average Flow	Weather			Initials	
			Start	End	Start	End	Start	End		Comment Number	P,C,F&R Start	P,C,F&R End	Start	End
052	7-CF-1084	16	6/21/06 0710	6/22/06 0655	-30.0	-7.0	2.50	2.55	3.2		C	C	JR	JR
053	7-VC-1098	9	6/21/06 0730	6/22/06 0720	-30.0	-7.5	2.50	2.00	2.9		C	C	JR	JR
054	7-LV-1099	14	6/21/06 0800	6/22/06 0750	-29.5	-7.0	2.50	2.40	3.1		C	C	JR	JR
055	7-LV-C-1058	2	6/21/06 0805	6/22/06 0755	-30.0	-6.0	2.40	2.35	3.1		C	C	JR	JR
056	7-CT-1153	15	6/21/06 0840	6/22/06 0830	-28.5	-7.0	1.75	1.20	2.1		K	K	JR	JR
057	7-CT-C-1133	7	6/21/06 0850	6/22/06 0835	-30.0	-10.5	2.40	1.55	2.6		K	K	JR	JR
058	7-TO-1056	13	6/21/06 0945	6/22/06 0940	-30.0	-5.0	2.10	2.00	2.7		K	K	JR	JR
059	7-TO-FS-1149	1	6/21/06 0935	6/22/06 0935	-30.0	-7.0	2.45	2.45	3.1		K	K	JR	JR
060	8-UD-1054	4	6/22/06 0635	6/23/06 0630	-30.0	-6.0	2.45	2.00	2.9		C	C	JR	JR
061	8-CF-1137	16	6/22/06 0700	6/23/06 0645	-30.0	-7.5	2.40	2.50	3.1		C	C	JR	JR
062	8-VC-1076	9	6/22/06 0725	6/23/06 0705	-30.0	-8.5	2.40	1.90	2.8		C	C	JR	JR
063	8-LV-1128	14	6/22/06 0755	6/23/06 0725	-30.0	-7.5	2.45	2.45	3.1		C	C	JR	JR
064	8-CT-1185	15	6/22/06 0850	6/23/06 0755	-30.0	-10.0	2.40	1.70	2.7		K	C	JR	JR
065	8-TO-1102	13	6/22/06 0945	6/23/06 0850	-29.0	-4.0	2.20	2.10	2.8		K	K	JR	JR
066	8-TS-1146	Vehicle	6/17/06 1300	6/23/06 1700									JR	JR
067	8-TB-1158	Vehicle	6/17/06 1300	6/23/06 1700									JR	JR
068	9-UD-1162	4	6/26/06 0630	6/27/06 0640	-30.0	-4.5	2.45	1.70	2.7		K	C	JR	JR

Comments

1: Log #55-extra collocated 2: Log #56-Flow maxed-out, needs orifice 3: Log #57-extra collocated

MFM Used #: 21024 **Slope:** 1.065 **Intrcpt:** 0.537

Weather Codes: K = Clear, P = Partly Cloudy, C = ≥67% Cloudy, F = Fog, and R = Rain (any)

CANISTER FIELD LOG SHEET

Project: Methyl Bromide/Telone (MeBr/Telone) Ambient Air Monitoring In Ventura County

Start Flow Set: 3.0 ±0.1ccm End Flow Criteria: 3.0 ccm ±25%

Log #	Sample Name	Sampler ID Number	Date & Time		Canister Vacuum Display		Mass Flow Meter Display		Corrected Average Flow	Weather			Initials	
			Start	End	Start	End	Start	End		Comment Number	P,C,F&R Start	P,C,F&R End	Start	End
069	9-UD-C-1092	11	6/26/06 0640	6/27/06 0630	-30.0	-8.5	2.45	2.41	3.1		K	C	JR	JR
070	9-CF-1083	16	6/26/06 0710	6/27/06 0700	-30.0	-7.5	2.45	2.45	3.1		K	C	JR	JR
071	9-CF-C-1173	10	6/26/06 0715	6/27/06 0705	-30.0	-7.0	2.40	2.40	3.1		K	K	JR	JR
072	9-VC-1107	9	6/26/06 0740	6/27/06 0725	-30.0	-8.0	2.50	2.10	3.0		K	K	JR	JR
073	9-VC-C-1166	3	6/26/06 0745	6/27/06 0730	-30.0	-10.5	2.45	1.80	2.8	1	K	P	JR	JR
074	9-LV-1139	14	6/26/06 0815	6/27/06 0755	-30.0	-7.0	2.45	2.50	3.2		K	P	JR	JR
075	9-LV-C-1090	2	6/26/06 0820	6/27/06 0800	-30.0	-6.0	2.30	2.30	3.0		K	P	JR	JR
076	9-CT-1135	7	6/26/06 0850	6/27/06 0830	-30.0	-4.5	2.40	1.60	2.7		K	P	JR	JR
077	9-CT-C-1113	15	6/26/06 0855	6/27/06 0840	-30.0	-9.5	2.50	1.15	2.5		K	P	JR	JR
078	9-TO-1170	13	6/26/06 0945	6/27/06 0935	-30.0	-1.0	2.45	0.55	2.1		K	P	JR	JR
079	9-TO-C-1073	1	6/26/06 0950	6/27/06 0950	-30.0	-7.0	2.40				K	P	JR	JR
080	10-UD-1145	11	6/27/06 0635	6/28/06 0620	-30.0	-8.5	2.45	2.30	3.1		K	K	JR	JR
081	10-CF-1179	16	6/27/06 0700	6/28/06 0645	-30.0	-7.5	2.40	2.40	3.1		P	K	JR	JR
082	10-VC-1108	9	6/27/06 0730	6/28/06 0705	-30.0	-8.9	2.35	2.15	2.9		P	K	JR	JR
083	10-LV-1175	14	6/27/06 0800	6/28/06 0730	-30.0	-7.5	2.47	2.48	3.2		P	K	JR	JR
084	10-CT-1196	7	6/27/06 0835	6/28/06 0800	-30.0	-3.9	2.20	0.85	2.2		P	K	JR	JR
085	10-TO-1074	13	6/27/06 0940	6/28/06 0905	-30.0	-2.0	2.40	1.15	2.4	2	P	K	JR	JR

Log #73 (controller $3) very sensitive to flow adj. #2-Controler #13, as-is flow 2.95

MFM Used #: 21024 Slope: 1.065 Intrcpt: 0.537

Weather Codes: K = Clear, P = Partly Cloudy, C = ≥67% Cloudy, F = Fog, and R = Rain (any)

CANISTER FIELD LOG SHEET

Project: Methyl Bromide/Telone (MeBr/Telone) Ambient Air Monitoring In Ventura County

Start Flow Set: 3.0 ±0.1ccm End Flow Criteria: 3.0 ccm ±25%

Log #	Sample Name	Sampler ID Number	Date & Time		Canister Vacuum Display		Mass Flow Meter Display		Corrected Average Flow	Weather			Initials	
			Start	End	Start	End	Start	End		Comment Number	P,C,F&R Start	P,C,F&R End	Start	End
086	10-TO-FS-1168	1	6/27/06 0950	6/28/06 0920	-30.0	-6.5	2.40	2.00	2.9		P	K	JR	JR
087	11-UD-1187	11	6/28/06 0625	6/29/06 0620	-30.0	-8.5	2.40	2.40	3.1		K	K	JR	JR
088	11-CF-1161	16	6/28/06 0650	6/29/06 0640	-30.0	-7.5	2.40	2.40	3.1		K	K	JR	JR
089	11-VC-1062	9	6/28/06 0710	6/29/06 0715	-30.0	-9.5	2.40	2.10	2.9		K	K	JR	JR
090	11-LV-1052	14	6/28/06 0735	6/29/06 0755	-29.0	-5.5	2.45	2.10	3.0		K	K	JR	JR
091	11-CT-1138	15	6/28/06 0810	6/29/06 0825	-29.0	-8.5	2.45	1.75	2.8		K	K	JR	JR
092	11-TO-1125	4	6/28/6 0910	6/29/06 0910	-30.0	-6.0	2.35	2.30	3.0	1	K	K	JR	JR
093	11-TO-C-1093	1	6/28/06 0920	6/29/06 0915	-30.0	-5.5	2.30	2.10	2.9		K	K	JR	JR
094	12-UD-1177	11	6/29/06 0626	6/30/06 0630	-30.0	-9.0	2.30	2.35	3.0		K	K	JR	JR
095	12-CF-1051	16	6/29/06 0645	6/30/06 0645	-30.0	-8.0	2.30	2.35	3.0		K	K	JR	JR
096	12-VC-1085	9	6/29/06 0720	6/30/06 0705	-30.0	-9.5	2.30	2.20	2.9		K	K	JR	JR
097	12-VC-C-1094	10	6/29/06 0730	6/30/06 0710	-30.0	-7.5	2.40	2.30	3.0		K	K	JR	JR
098	12-LV-1142	14	6/29/06 0755	6/30/06 0730	-30.0	-7.0	2.40	2.40	3.1		K	K	JR	JR
099	12-CT-1110	15	6/29/06 0830	6/30/06 0755	-29.0	-12.0	2.20	1.55	2.5		K	K	JR	JR
100	12-TO-1141	4	6/29/06 0915	6/30/06 0845	-30.0	-6.0	2.30	2.40	3.0		K	K	JR	JR
101	12-TO-C-1088	1	6/29/06 0920	6/30/06 0850	-30.0	-7.5	2.30	2.40	3.0		K	K	JR	JR
102	12-TS-1065	Vehicle	6/23/06 1700	6/30/06 1730	NA						K	K	JR	JR

Comments

Log#92-Replaced contr #13 w/#4 (UD).

Log#97 - Replaced hrd to adj controller #3 w/#10 (CF)

MFM Used #: 21024 **Slope:** 1.065 **Intrcpt:** 0.537

Weather Codes: K = Clear, P = Partly Cloudy, C = ≥67% Cloudy, F = Fog, and R = Rain (any)

CANISTER FIELD LOG SHEET

Project: Methyl Bromide/Telone (MeBr/Telone) Ambient Air Monitoring In Ventura County

Start Flow Set: 3.0 ±0.1ccm End Flow Criteria: 3.0 ccm ±25%

Log #	Sample Name	Sampler ID Number	Date & Time		Canister Vacuum Display		Mass Flow Meter Display		Corrected Average Flow	Weather			Initials	
			Start	End	Start	End	Start	End		Comment Number	P,C,F&R Start	P,C,F&R End	Start	End
103	12-TB-1066	VEH	6/23/06 1700	6/30/06 1730	NA	NA	NA	NA	NA		K	K	JR	JR
104	13-UD-1169	28	7/5/06 0630	7/6/06 0630	-29.0	-8.5	2.80	2.80	3.0		K	K	SA	SA
105	13-CF-1140	27	7/5/06 0655	7/6/06 0700	-30.0	-8.5	2.80	2.85	3.0		K	K	SA	SA
106	13-VC-1153	26	7/5/06 0720	7/6/06 0740	-29.0	-6.5	2.80	3.00	3.1		K	K	SA	SA
107	13-LV-1122	25	7/5/06 0750	7/6/06 0830	-30.0	-9.5	2.80	2.40	2.8		K	K	SA	SA
108	13-CT-1098	24	7/5/06 830	7/6/06 0900	-30.0	-9.5	2.80	2.60	2.9		K	K	SA	SA
109	13-TO-1124	23	7/5/06 0900	7/6/06 0930	-30.0	-8.5	2.80	2.80	3.0		K	K	SA	SA
110	13-TO-FS-1178	22	7/5/06 0915	7/6/06 0945	-30.0	-8.0	2.80	2.60	2.9		K	K	SA	SA
111	14-UD-1136	28	7/6/06 0630	7/7/06 0620	-29.5	-7.5	2.85	2.85	3.0		K	K	SA	SA
112	14-UD-C-1086	14	7/6/06 0640	7/7/06 0635	-30.0	-8.5	2.85	2.85	3.0		K	K	SA	SA
113	14-CF-1061	27	7/6/06 0710	7/7/06 0655	-30.0	-7.5	2.85	3.00	3.1		K	K	SA	SA
114	14-CF-C-1112	16	7/6/06 0720	7/7/06 0700	-30.0	-8.5	2.85	2.85	3.0		K	K	SA	SA
115	14-VC-1060	26	7/6/06 0740	7/7/06 0730	-30.0	-7.5	2.85	2.90	3.0		K	K	SA	SA
116	14-VC-C-1134	1	7/6/06 0800	7/7/06 0745	-30.0	-9.0	2.85	2.85	3.0		K	K	SA	SA
117	14-LV-1105	25	7/6/06 0830	7/7/06 0830	-30.0	-8.0	2.85	2.85	3.0		K	K	SA	SA
118	14-CT-1059	24	7/6/06 0900	7/7/06 0900	-30.0	-7.0	2.90	3.00	3.1		K	K	SA	SA
119	14-CT-C-1053	11	7/6/06 0900	7/7/06 0900	-30.0	-9.0	2.90	2.80	3.0		K	K	SA	SA

Comments

MFM Used #: 5400 Slope: 1.000 Intrcpt: 0.162

Weather Codes: K = Clear, P = Partly Cloudy, C = ≥67% Cloudy, F = Fog, and R = Rain (any)

CANISTER FIELD LOG SHEET

Project: Methyl Bromide/Telone (MeBr/Telone) Ambient Air Monitoring In Ventura County

Start Flow Set: 3.0 ±0.1ccm End Flow Criteria: 3.0 ccm ±25%

Log #	Sample Name	Sampler ID Number	Date & Time		Canister Vacuum Display		Mass Flow Meter Display		Corrected Average Flow	Weather			Initials	
										Comment Number	P,C,F&R			
			Start	End	Start	End	Start	End			Start	End	Start	End
120	14-TO-1104	23	7/6/06 940	7/7/06 940	-30.0	-6.0	2.90	2.90	3.1		K	K	SA	SA
121	14-TO-C-1054	22	7/6/06 945	7/7/06 940	-30.0	-6.0	2.90	2.90	3.1		K	K	SA	SA
122	15-UD-1180	28	7/7/06 625	7/8/06 615	-29.0	-7.0	2.90	2.90	3.1		K	K	SA	SA
123	15-CF-1152	27	7/7/06 655	7/8/06 635	-30.0	-7.0	2.95	2.95	3.1		K	K	SA	SA
124	15-VC-1176	26	7/7/06 730	7/8/06 700	-30.0	-6.5	2.95	2.95	3.1		K	K	SA	SA
125	15-LV-1055	25	7/7/06 830	7/8/06 725	-30.0	-8.5	2.95	2.80	3.0		K	K	SA	SA
126	15-TO-1064	23	7/7/06 950	7/8/06 815	-30.0	-8.0	2.95	2.75	3.0		K	K	SA	SA
127	14-LV-C-1163	9	7/6/06 830	7/7/06 830	-30.0	-9.0	2.85	2.60	2.9		K	K	SA	SA
128	16-UD-1103	28	7/8/06 620	7/9/06 615	-30.0	-7.5	2.95	2.95	3.1		K	K	SA	SA
129	16-CF-1106	27	7/8/06 640	7/9/06 630	-30.0	-6.5	3.00	3.00	3.2		K	K	SA	SA
130	16-VC-1185	26	7/8/06 705	7/9/06 650	-30.0	-6.5	3.00	3.00	3.2		K	K	SA	SA
131	16-LV-1091	25	7/8/06 725	7/9/06 710	-30.0	-8.5	3.00	2.80	3.1		K	K	SA	SA
132	16-TO-1182	23	7/8/06 820	7/9/06 750	-30.0	-6.5	3.00	3.00	3.2		K	K	SA	SA
133	16-TB-1164	Vehicle	7/3/06 900	7/9/06 1800							K	K	SA	SA
134	16-TS-1171	Vehicle	7/3/06 900	7/9/06 1800							K	K	SA	SA
135	17-TB	Vehicle	7/7/06 1500	7/14/06 1700							K	K	AC	AC
136	17-TS	Vehicle	7/7/06 1500	7/14/06 1700							K	K	AC	AC

Comments

MFM Used #: 5400 Slope: 1.000 Intrcpt: 0.162

Weather Codes: K = Clear, P = Partly Cloudy, C = ≥67% Cloudy, F = Fog, and R = Rain (any)

CANISTER FIELD LOG SHEET

Project: Methyl Bromide/Telone (MeBr/Telone) Ambient Air Monitoring In Ventura County

Start Flow Set: 3.0 ±0.1ccm End Flow Criteria: 3.0 ccm ±25%

Log #	Sample Name	Sampler ID Number	Date & Time		Canister Vacuum Display		Mass Flow Meter Display		Corrected Average Flow	Weather			Initials	
			Start	End	Start	End	Start	End		Comment Number	P,C,F&R Start	P,C,F&R End	Start	End
137	17-UD-1170	14	7/10/06 0547	7/11/06 0548	-30.0	-8.5	2.98	2.98	3.1		F	F	AC	AC
138	17-UD-C-1158	28	7/10/06 0555	7/11/06 0555	-29.0	-8.0	2.98	3.05	3.2		F	F	AC	AC
139	17-CF-1132	27	7/10/06 0620	7/11/06 0620	-30.0	-7.5	2.95	3.07	3.2		F	F	AC	AC
140	17-CF-C-1196	16	7/10/06 0625	7/11/06 0630	-29.0	-9.0	2.95	2.90	3.1	1	F	F	AC	AC
141	17-VC-1135	26	7/10/06 0650	7/11/06 0650	-29.0	-9.0	2.94	2.75	3.0		F	F	AC	AC
142	17-VC-C-1111	1	7/10/06 0655	7/11/06 0720	-29.0	-10.0	2.90	2.59	2.9		F	F	AC	AC
143	17-LV-1129	9	7/10/06 0725	7/11/06 0744	-30.0	-9.0	2.95	2.75	3.0		F	F	AC	AC
144	17-LV-C-1087	25	7/10/06 0732	NA	-30.0	NA				2			AC	AC
145	17-LV-C-1102	10	7/10/06 0750	7/11/06 0800	-30.0	-9.5	2.95	2.57	2.9		F	F	AC	AC
146	17-CT-1084	24	7/10/06 0817	7/11/06 0828	-30.0	-6.0	2.95	3.15	3.2		K	K	AC	AC
147	17-CT-C-1050	11	7/10/06 0822	7/11/06 0840	-30.0	-9.5	2.85	2.80	3.0	3	K	K	AC	AC
148	17-TO-1071	22	7/10/06 0858	7/11/06 0912	-30.0	-8.5	2.90	2.80	3.0		K	K	AC	AC
149	17-TO-C-1067	23	7/10/06 0904	7/11/06 0921	-30.0	-7.5	2.95	2.97	3.1		K	K	AC	AC
150	18-UD-1172	14	7/11/06 0556	7/12/06 0550	-29.0	-8.0	3.00	3.03	3.2		F	K	AC	AC
151	18-CF-1074	27	7/11/06 0622	7/12/06 0615	-30.0	-8.0	2.95	2.98	3.1		F	K	AC	AC
152	18-VC-1166	26	7/11/06 0710	7/12/06 0645	-30.0	-6.0	3.00	3.05	3.2		F	K	AC	AC
153	18-LV-1097	9	7/11/06 0749	7/12/06 0734	-30.0	-9.0	3.00	2.57	2.9		F	K	AC	AC

Comments: 1. Adjustment cover plate left off over weekend.

2. Bad can threads + flow controller

3. Sampler #11 guage sticky; no sun screen fo controller.

4.Smoldering Fire pit 100 yds upwind of sampler 7/11/06 @0618 PST.

5. 7/11/06 @ 0800 both fields north and south of LV being worked with tractors.

MFM Used #: 5400 Slope: 1.000 Intrcpt: 0.162

Weather Codes: K = Clear, P = Partly Cloudy, C = ≥67% Cloudy, F = Fog, and R = Rain (any)

CANISTER FIELD LOG SHEET

Project: Methyl Bromide/Telone (MeBr/Telone) Ambient Air Monitoring In Ventura County

Start Flow Set: 3.0 ±0.1ccm End Flow Criteria: 3.0 ccm ±25%

Log #	Sample Name	Sampler ID Number	Date & Time		Canister Vacuum Display		Mass Flow Meter Display		Corrected Average Flow	Weather			Initials	
										Comment Number	P,C,F&R			
			Start	End	Start	End	Start	End			Start	End	Start	End
154	18-CT-1162	24	7/11/06 0830	7/12/06 0815	-30.0	-7.5	3.00	3.10	3.2		K	K	AC	AC
155	18-TO-1070	22	7/11/06 0915	7/12/06 0850	-30.0	-6.0	3.00	2.73	3.0		K	K	AC	AC
156	18-TO-FS-1089	23	7/11/06 0923	7/12/06 0850	-30.0	-5.0	3.00	2.70	3.0		K	K	AC	AC
157	19-UD-1167	14	7/12/06 0552	7/13/06 0550	-30.0	-9.0	3.00	2.95	3.1		K	K	AC	AC
158	19-CF-1126	27	7/12/06 0615	7/13/06 0615	-30.0	-7.0	3.00	3.22	3.3	1	K	K	AC	AC
159	19-VC-1141	26	7/12/06 0646	7/13/06 0646	-30.0	-6.0	3.00	3.00	3.2		K	K	AC	AC
160	19-LV-1093	9	7/12/06 0737	7/13/06 0715	-30.0	-9.0	3.00	2.40	2.9		K	K	AC	AC
161	19-CT-1125	24	7/12/06 0818	7/13/06 0822	-30.0	-7.0	3.00	3.00	3.2	2	K	K	AC	AC
162	19-TO-1088	22	7/12/06 0855	7/13/06 0900	-30.0	-5.5	3.00	2.85	3.1		K	K	AC	AC
163	20-UD-1186	14	7/13/06 0552	7/14/06 0550	-30.0	-7.0	3.00	2.80	3.1		K	F	AC	AC
164	20-CF-1128	27	7/13/06 0617	7/14/06 0610	-30.0	-7.0	3.06	3.20	3.3		K	K	AC	AC
165	20-VC-1146	26	7/13/06 0647	7/14/06 0630	-30.0	-6.5	3.00	3.00	3.2	3	K	F	AC	AC
166	20-LV-1032	9	7/13/06 0717	7/14/06 0700	-30.0	-9.0	3.00	2.45	2.9	4	K	F	AC	AC
167	20-CT-1181	24	7/13/06 0825	7/14/06 0755	-30.0	-6.5	3.00	3.20	3.3		K	K	AC	AC
168	20-TO-1072	22	7/13/06 0904	7/14/06 0835	-30.0	-7.0	2.90	2.80	3.0		K	K	AC	AC
169	21-UD-1107	14	7/17/06 5:58	7/18/06 5:58	-30.0	-9.0	2.92	2.82	3.0		C	C	SRR	SRR
170	21-UD-C-1136	28	7/17/06 5:58	7/18/06 5:58	-29.0	-8.0	2.92	2.97	3.1		C	C	SRR	SRR

Comments

1. 7/12/06 0615 Noticed helicopter crop duster flying east to west. No spraying crops.
2. Caltrans yard activity raising dust by samplers, located next to the garbage bins.
3. Fire extinguishers being serviced. Powder in air.
4. After Run #20 replaced sampler #9 with sampler #2.

MFM Used #: 5400 **Slope:** 1.000 **Intrcpt:** 0.162

Weather Codes: K = Clear, P = Partly Cloudy, C = ≥67% Cloudy, F = Fog, and R = Rain (any)

CANISTER FIELD LOG SHEET

Project: Methyl Bromide/Telone (MeBr/Telone) Ambient Air Monitoring In Ventura County

Start Flow Set: 3.0 ±0.1ccm End Flow Criteria: 3.0 ccm ±25%

Log #	Sample Name	Sampler ID Number	Date & Time		Canister Vacuum Display		Mass Flow Meter Display		Corrected Average Flow	Weather			Initials	
			Start	End	Start	End	Start	End		Comment Number	P,C,F&R Start	P,C,F&R End	Start	End
171	21-CF-1073	27	7/17/06 6:27	7/18/06 6:21	-30.0	-8.0	2.94	2.96	3.1		C	C	SRR	SRR
172	21-CF-C-1105	16	7/17/06 6:27	7/18/06 6:21	-30.0	-8.0	2.94	2.94	3.1		C	C	SRR	SRR
173	21-VC-1055	26	7/17/06 6:59	7/18/06 6:46	-29.0	-6.0	2.93	2.82	3.0		C	C	SRR	SRR
174	21-VC-C-1113	1	7/17/06 6:59	7/18/06 6:46	-29.0	-9.5	2.94	2.74	3.0		C	C	SRR	SRR
175	21-LV-1122	2	7/17/06 7:34	7/18/06 7:29	-30.0	-9.5	2.93	2.89	3.1		C	C	SRR	SRR
176	21-LV-C-1051	10	7/17/06 7:34	7/18/06 7:29	-30.0	-10.0	2.96	2.86	3.1		C	C	SRR	SRR
177	21-CT-1149	11	7/17/06 8:10	7/18/06 8:07	-28.0	-9.0	2.91	2.85	3.0	1	C	P	SRR	SRR
178	21-CT-C-1152	24	7/17/06 8:06	7/18/06 8:07	-30.0	-8.0	2.95	2.95	3.1		C	P	SRR	SRR
179	21-TO-1185	22	7/17/06 8:53	7/18/06 8:50	-30.0	-7.0	2.90	2.95	3.1		C	P	SRR	SRR
180	21-TO-C-1163	23	7/17/06 8:53	7/18/06 8:50	-30.0	-7.0	2.95	2.96	3.1		C	P	SRR	SRR
181	22-UD-1134	28	7/18/06 6:03	7/19/06 5:58	-29.0	-7.0	2.98	3.04	3.2		C	F	SRR	SRR
182	22-CF-1180	27	7/18/06 6:27	7/19/06 6:15	-30.0	-7.5	2.97	3.05	3.2		C	F	SRR	SRR
183	22-VC-1176	26	7/18/06 6:50	7/19/06 6:35	-30.0	-7.0	2.95	2.90	3.1		C	F	SRR	SRR
184	22-LV-1086	2	7/18/06 7:33	7/19/06 7:00	-30.0	-7.0	3.00	3.17	3.2		C	F	SRR	SRR
185	22-CT-1142	11	7/18/06 8:11	7/19/06 7:41	-30.0	-8.0	2.98	3.12	3.2		P	K	SRR	SRR

Comments: 1. Replaced canister 1104 due to initially thinking can was high on vacuum. Gage on controller #11 is slow to react. After tapping on went to -28.

MFM Used #: 5400 **Slope:** 1.000 **Intrcpt:** 0.162

Weather Codes: K = Clear, P = Partly Cloudy, C = ≥67% Cloudy, F = Fog, and R = Rain (any)

CANISTER FIELD LOG SHEET

Project: Methyl Bromide/Telone (MeBr/Telone) Ambient Air Monitoring In Ventura County

Start Flow Set: 3.0 ±0.1ccm End Flow Criteria: 3.0 ccm ±25%

Log #	Sample Name	Sampler ID Number	Date & Time (PST)		Canister Vacuum Display		Mass Flow Meter Display		Corrected Average Flow	Weather			Initials	
			Start	End	Start	End	Start	End		Comment Number	P,C,F&R Start	P,C,F&R End	Start	End
186	22-TO-1061	22	7/18/06 8:54	7/19/06 8:24	-30.0	-7.5	2.94	2.92	3.1		P	K	SRR	SRR
187	22-TO-FS-1173	23	7/18/06 8:54	7/19/06 8:24	-30.0	-7.0	2.94	2.90	3.1		P	K	SRR	SRR
188	23-UD-1103	28	7/19/06 6:00	7/20/06 5:54	-29.0	-7.0	3.00	3.08	3.2		F	F	SRR	SRR
189	23-CF-1060	27	7/19/06 6:17	7/20/06 6:10	-30.0	-7.0	2.95	3.04	3.2		F	F	SRR	SRR
190	23-VC-1054	26	7/19/06 6:37	7/20/06 6:28	-30.0	-7.0	2.94	2.87	3.1		F	F	SRR	SRR
191	23-LV-1085	2	7/19/06 7:01	7/20/06 6:51	-30.0	-6.6	3.11	3.29	3.4		F	F	SRR	SRR
192	23-CT-1169	11	7/19/06 7:42	7/20/06 7:16	-30.0	-8.0	3.00	3.14	3.2		K	F	SRR	SRR
193	23-TO-1138	22	7/19/06 8:26	7/20/06 7:56	-30.0	-7.0	2.98	3.00	3.2		K	K	SRR	SRR
194	24-UD-1187	28	7/20/06 5:56	7/21/06 5:44	-29.0	-7.0	2.99	3.06	3.2		F	F	SRR	SRR
195	24-CF-1112	27	7/20/06 6:12	7/21/06 5:55	-30.0	-7.5	2.97	3.00	3.1		F	F	SRR	SRR
196	24-VC-1140	26	7/20/06 6:29	7/21/06 6:09	-29.0	-7.0	2.96	2.78	3.0		F	F	SRR	SRR
197	24-LV-1098	2	7/20/06 6:52	7/21/06 6:29	-30.0	-7.0	3.12	3.20	3.3		F	F	SRR	SRR
198	24-CT-1153	11	7/20/06 7:18	7/21/06 6:52	-30.0	-9.0	3.06	3.00	3.2		F	F	SRR	SRR
199	24-TO-1053	22	7/20/06 7:57	7/21/06 7:27	-30.0	-7.0	3.00	2.98	3.2		K	K	SRR	SRR
200	24-TB-1110	N.A.	7/14/06 1500	7/21/06 1410							K	N.A.	SRR	N.A.
201	24-TS-1052	N.A.	7/14/06 1500	7/21/06 1410							K	N.A.	SRR	N.A.
202	25-UD-1095	28	7/24/06 6:15	7/26/06 0:00	-30.0	-7.5	3.00	3.00	3.2		K	K	SA	SA

Comments

MFM Used #: 5400 **Slope:** 1.000 **Intrcpt:** 0.162

Weather Codes: K = Clear, P = Partly Cloudy, C = ≥67% Cloudy, F = Fog, and R = Rain (any)

CANISTER FIELD LOG SHEET

Project: Methyl Bromide/Telone (MeBr/Telone) Ambient Air Monitoring In Ventura County

Start Flow Set: 3.0 ±0.1ccm End Flow Criteria: 3.0 ccm ±25%

Log #	Sample Name	Sampler ID Number	Date & Time		Canister Vacuum Display		Mass Flow Meter Display		Corrected Average Flow	Weather Comment Number	Weather P,C,F&R		Initials	
			Start	End	Start	End	Start	End			Start	End	Start	End
203	25-CF-1156	27	7/24/06 6:35	7/25/06 6:40	-30.0	-7.0	2.95	2.95	3.1		K	K	SA	SA
204	25-VC-1145	26	7/24/06 7:00	7/25/06 7:10	-30.0	-6.5	3.00	3.00	3.2		K	K	SA	SA
205	25-LV-1161	2	7/24/06 7:30	7/25/06 7:40	-30.0	-6.0	3.00	2.85	3.1	2	K	K	SA	SA
206	25-CT-1182	24	7/24/06 8:00	7/25/06 8:40	-30.0	-6.0	3.00	3.00	3.2		K	K	SA	SA
207	25-TO-1050	23	7/24/06 8:30	7/25/06 9:15	-30.0	-5.5	3.00	3.00	3.2		K	K	SA	SA
208	25-TO-FS-1123	22	7/24/06 8:40	7/25/06 9:15	-29.0	-5.5	2.95	3.00	3.1		K	K	SA	SA
209	26-UD-1066	28	7/25/06 6:20	7/26/06 6:05	-30.0	-7.5	2.95	3.00	3.1	1	K	K	SA	SA
210	26-UD-C-1062	14	7/25/06 6:25	7/26/06 6:05	-30.0	-8.0	3.00	3.00	3.2	1	K	K	SA	SA
211	26-CF-1092	27	7/25/06 6:45	7/26/06 6:25	-30.0	-7.5	2.90	3.00	3.1		K	K	SA	SA
212	26-CF-C-1175	16	7/25/06 6:50	7/26/06 6:25	-30.0	-7.5	3.00	3.00	3.2		K	K	SA	SA
213	26-VC-1071	26	7/25/06 7:15	7/26/06 6:45	-30.0	-7.5	3.00	2.80	3.1		K	K	SA	SA
214	26-VC-C-1171	1	7/25/06 7:25	7/26/06 6:50	-30.0	-9.0	3.00	2.80	3.1		K	K	SA	SA
215	26-LV-1139	21	7/25/06 8:00	7/26/06 7:10	-29.0	-4.5	2.95	3.00	3.1	3,2	K	K	SA	SA
216	26-LV-C-1065	10	7/25/06 8:10	7/26/06 7:10	-30.0	-7.5	3.00	3.00	3.2	2	K	K	SA	SA
217	26-CT-1064	24	7/25/06 8:40	7/26/06 7:45	-30.0	-7.5	3.00	3.00	3.2		K	K	SA	SA
218	26-CT-C-1184	11	7/25/06 8:45	7/26/06 7:45	-30.0	-9.0	3.00	2.85	3.1		K	K	SA	SA
219	26-TO-1106	23	7/25/06 9:20	7/26/06 8:15	-30.0	-7.0	3.00	3.00	3.2		K	K	SA	SA

Comments 1. PLASTIC DOWN FOR STRAWBERRIES ON NORTH SIDE OF SAMPLER 7/25/06

2. HELICOPTER SPRAYING IN THE AREA

3. REPLACED CONTROLLER #2 WITH #21 AND REPLACED SAMPLE TRAIN DUE TO LEAK

MFM Used #: 5400 **Slope:** 1.000 **Intrcpt:** 0.162

Weather Codes: K = Clear, P = Partly Cloudy, C = ≥67% Cloudy, F = Fog, and R = Rain (any)

CANISTER FIELD LOG SHEET

Project: Methyl Bromide/Telone (MeBr/Telone) Ambient Air Monitoring In Ventura County

Start Flow Set: 3.0 ±0.1ccm End Flow Criteria: 3.0 ccm ±25%

Log #	Sample Name	Sampler ID Number	Date & Time		Canister Vacuum Display		Mass Flow Meter Display		Corrected Average Flow	Weather			Initials	
										Comment Number	P,C,F&R			
			Start	End	Start	End	Start	End			Start	End	Start	End
220	26-TO-C-1124	22	7/25/06 9:20	7/26/06 8:15	-30.0	-8.5	3.00	3.00	3.2		K	K	SA	SA
221	27-UD-1069	28	7/26/06 6:10	7/27/06 6:05	-29.5	-7.0	3.00	3.00	3.2		K	K	SA	SA
222	27-CF-1179	27	7/26/06 6:30	7/27/06 6:30	-30.0	-5.5	3.00	3.00	3.2		K	K	SA	SA
223	27-VC-1090	26	7/26/06 6:50	7/27/06 6:50	-29.0	-6.5	2.92	2.90	3.1		K	K	SA	SA
224	27-LV-1063	10	7/26/06 7:20	7/27/06 7:20	-30.0	-8.0	3.00	3.00	3.2	1	K	K	SA	SA
225	27-CT-1160	24	7/26/06 7:50	7/27/06 7:55	-30.0	-6.5	3.00	3.00	3.2		K	K	SA	SA
226	27-TO-1099	23	7/26/06 8:20	7/27/06 8:30	-30.0	-6.5	3.00	3.00	3.2		K	K	SA	SA
227	28-UD-1091	28	7/27/06 6:10	7/28/06 6:10	-29.0	-7.5	2.95	2.90	3.1		K	K	SA	SA
228	28-CF-1164	27	7/27/07 6:35	7/28/06 6:25	-30.0	-7.5	2.90	2.90	3.1		K	K	SA	SA
229	28-VC-1144	26	7/27/06 7:00	7/28/06 6:35	-30.0	-5.5	2.90	2.90	3.1		K	K	SA	SA
230	28-LV-1178	10	7/27/06 7:20	7/28/06 6:50	-30.0	-9.0	2.90	2.90	3.1		K	K	SA	SA
231	28-LV-C-1171	21	7/27/06 7:30	7/28/06 6:50	-28.5	-8.0	2.80	2.80	3.0	2	K	K	SA	SA
232	28-CT-1056	24	7/27/06 8:00	7/28/06 7:15	-30.0	-8.5	2.90	2.90	3.1		K	K	SA	SA
233	28-TO-1058	23	7/27/06 8:35	7/28/06 7:40	-30.0	-7.5	2.90	3.00	3.1		K	K	SA	SA
234	28-TB-1042	N/A	7/21/06 15:00	7/28/06 17:00						3	K	K	SA	SA
235	28-TS-1154	N/A	7/21/06 15:00	7/28/06 17:00						4	K	K	SA	SA
236											K	K	SA	SA

Comments 1. HELICOPTER IN AREA SPRAYING

2. MAKE UP SAMPLE FOR LOW COLLOCATED AT SAME SITE ON 7/26/06

003 Trip Blank

004 Trip Spike

MFM Used #: 5400 **Slope:** 1.000 **Intrcpt:** 0.162

Weather Codes: K = Clear, P = Partly Cloudy, C = ≥67% Cloudy, F = Fog, and R = Rain (any)

CANISTER FIELD LOG SHEET

Project: Methyl Bromide/Telone (MeBr/Telone) Ambient Air Monitoring In Ventura County

Start Flow Set: 3.0 ±0.1ccm End Flow Criteria: 3.0 ccm ±25%

Log #	Sample Name	Sampler ID Number	Date & Time		Canister Vacuum Display		Mass Flow Meter Display		Corrected Average Flow	Weather Comment Number	Weather P,C,F&R		Initials	
			Start	End	Start	End	Start	End			Start	End	Start	End
237	29-UD-1170	28	8/2/06 0745	8/3/06 0725	29.5	-9.0	2.80	2.80	3.0		C	K	JR	JR
238	29-UD-C-1167	14	8/2/06 0755	8/3/06 0730	-30.0	-9.0	2.83	2.80	3.0		C	K	JR	JR
239	29-CF-1083	16	8/2/06 0820	8/3/06 0755	-30.0	-7.5	2.85	3.05	3.1		K	K	JR	JR
240	29-CF-C-1087	27	8/2/06 0830	8/3/06 0800	-30.0	-8.0	2.80	2.95	3.0		K	K	JR	JR
241	29-VC-1125	1	8/2/06 0855	8/3/06 0825	-30.0	-9.5	2.85	3.00	3.1		K	C	JR	JR
242	29-VC-C-1102	26	8/2/06 0905	8/3/06 0830	-30.0	-8.0	2.80	2.90	3.0		K	C	JR	JR
243	29-LV-1137	10	8/2/06 0930	8/3/06 0910	-30.0	-8.0	2.80	3.00	3.1	1	K	C	JR	JR
244	29-LC-C-1066	21	8/2/06 0940	8/3/06 0915	-30.0	-2.5	2.85	3.70	3.4		K	C	JR	JR
245	29-CT-1101	11	8/2/06 1010	8/3/06 1000	-30.0	-8.5	2.80	2.95	3.0		K	C	JR	JR
246	29-CT-C-1097	24	8/2/06 1015	8/3/06 1000	-30.0	-7.2	2.85	3.05	3.1		K	C	JR	JR
247	29-TO-1172	23	8/2/06 1055	8/3/06 1050	-30.0	-9.0	2.82	2.95	3.0		K	C	JR	JR
248	29-TO-C-1088	22	8/2/06 1100	8/3/06 1055	-30.0	-9.0	2.85	2.80	3.0	1	K	C	JR	JR
249	30-UD-1067	28	8/3/06 0735	8/4/06 0715	-30.0	-8.5	2.75	2.90	3.0	2	K	D	JR	JR
250	30-UD-C-1196	14	8/3/06 0740	8/4/06 0720	-30.0	-9.0	2.80	2.85	3.0	2	K	D	JR	JR
251	30-CF-1158	16	8/3/06 0805	8/4/06 0745	-30.0	-7.5	2.85	3.00	3.1		K	C	JR	JR
252	30-VC-1132	1	8/3/06 0835	8/4/06 0820	-30.0	-9.0	2.90	2.85	3.0		C	C	JR	JR
253	30-VC-C-1128	26	8/3/06 0838	8/4/060825	-29.5	-6.8	2.95	3.00	3.1		C	C	JR	JR

Comments

001 Controllers #10 and #22 sensitive to adjustment.

002 Weather code D: drizzle

MFM Used #: 5400 **Slope: 1.000** **Intrcpt: 0.162**

Weather Codes: K = Clear, P = Partly Cloudy, C = ≥67% Cloudy, F = Fog, and R = Rain (any)

CANISTER FIELD LOG SHEET

Project: Methyl Bromide/Telone (MeBr/Telone) Ambient Air Monitoring In Ventura County

Start Flow Set: 3.0 ±0.1ccm End Flow Criteria: 3.0 ccm ±25%

Log #	Sample Name	Sampler ID Number	Date & Time		Canister Vacuum Display		Mass Flow Meter Display		Corrected Average Flow	Weather Comment Number	Weather P,C,F&R		Initials	
			Start	End	Start	End	Start	End			Start	End	Start	End
254	30-LV-1126	10	8/3/06 0920	8/4/06 0905	-30.0	-7.2	2.95	3.00	3.1		C	C	JR	JR
255	30-LV-C-1076	21	8/3/06 0925	8/4/06 0905	-29.0	-6.5	2.50	3.20	3.0	1	C	C	JR	JR
256	30-CT-1057	11	8/3/06 1005	8/4/06 1005	-30.0	-8.5	2.90	2.90	3.1		C	P	JR	JR
257	30-CT-C-1089	24	8/3/06 1010	8/4/06 1005	-30.0	-7.8	2.80	2.75	2.9		C	P	JR	JR
258	30-TO-FS-1127	23	8/3/06 1100	8/4/06 1115	-30.0	-8.0	2.85	2.85	3.0		P	P	JR	JR
259	30-TO-1186	22	8/3/06 1110	8/4/06 1125	-30.0	-9.0	2.85	2.75	3.0		P	P	JR	JR
260	31-UD-1153	28	8/4/06 0725	8/5/06 0635	-29.0	-8.8	2.80	2.90	3.0		D	K	JR	JR
261	31-UD-C-1053	14	8/4/06 0730	8/5/06 0640	-30.0	-9.8	2.85	2.90	3.0		D	K	JR	JR
262	31-CF-1105	16	8/4/06 0750	8/5/06 0705	-30.0	-7.7	2.95	2.90	3.1		C	K	JR	JR
263	31-VC-1135	1	8/4/06 0835	8/5/06 0740	-30.0	-9.8	2.90	2.85	3.0		C	K	JR	JR
264	31-VC-C-1141	26	8/4/06 0840	8/5/06 0745	-29.5	-6.7	2.90	3.05	3.1		C	K	JR	JR
265	31-LV-1181	10	8/4/06 0915	8/5/06 0820	-30.0	-9.5	2.85	2.90	3.0		C	K	JR	JR
266	31-LV-C-1093	21	8/4/06 0920	8/5/06 0825	-30.0	-7.5	2.90	2.90	3.1	2	C	K	JR	JR
267	31-TO-1140	23	8/4/06 1120	8/5/06 1035	-30.0	-8.5	2.80	2.90	3.0	3	P	K	JR	JR
268	32-UD-1130	28	8/5/06 0645	8/6/06 0655	-29.5	-8.1	2.75	2.75	2.9		K	K	JR	JR
269	32-UD-C-1085	14	8/5/06 0650	8/6/06 0700	-30.0	-8.2	2.85	2.85	3.0	4	K	K	JR	JR
270	32-CF-1055	16	8/5/06 0710	8/6/06 0715	-30.0	-6.4	2.90	3.10	3.2		K	K	JR	JR

Comments

001 Contoller #21 very sensitive to adjustment 8/6/06- Took pics of MBr-treated field (8/4, 0600) 1/2 - 1 mile No. of LV

002 8/4-LV-C: Replaced controller #21 with #27 fr CF.

003 Prior to TO, removed all equip for Caltrans on 8/4/06.

004 #269 invalid due to open valve during takeoff.

MFM Used #: 5400 Slope: 1.000 Intrcpt: 0.162

Weather Codes: K = Clear, P = Partly Cloudy, C = ≥67% Cloudy, F = Fog, and R = Rain (any)

CANISTER FIELD LOG SHEET

Project: Methyl Bromide/Telone (MeBr/Telone) Ambient Air Monitoring In Ventura County

Start Flow Set: 3.0 ±0.1ccm End Flow Criteria: 3.0 ccm ±25%

Log #	Sample Name	Sampler ID Number	Date & Time		Canister Vacuum Display		Mass Flow Meter Display		Corrected Average Flow	Weather			Initials	
			Start	End	Start	End	Start	End		Comment Number	P,C,F&R Start	P,C,F&R End	Start	End
271	32-VC-1180	26	8/5/06 0745	8/6/06 0735	-29.5	-6.9	3.00	3.05	3.2		K	K	JR	JR
272	32-LV-1168	10	8/5/06 0825	8/6/06 0810	-30.0	-9.3	2.85	3.05	3.1		K	P	JR	JR
273	32-LV-C-1111	27	8/5/06 0835	8/6/06 0800	-30.0	-7.2	2.90	2.95	3.1		K	P	JR	JR
274	32-TO-1165	23	8/5/06 1040	8/6/06 1000	-30.0	-8.2	2.90	2.90	3.1		K	K	JR	JR
275	32-TS-1151	Vehicle	8/1/06 0900	8/6/06 1730						1			JR	JR
276	32-TB-1104	Vehicle	8/1/06 0900	8/6/06 1730						2, 3			JR	JR
277														
278														
279														
280														
281														
282														
283														
284														
285														
286														
287														

Comments

001 Trip spike

002 Trip Blank

003 End of sampling

MFM Used #: 5400 **Slope:** 1.000 **Intrcpt:** 0.162

Weather Codes: K = Clear, P = Partly Cloudy, C = ≥67% Cloudy, F = Fog, and R = Rain (any)